BILL BRUCE
IN THE
TRANS-CONTINENTAL RACE

H. H. ARNOLD

Merry Xmas
to Our Jimmy
from
Aunt Ruby & Uncle Bill
12/25/30

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The engine started, and they were all set to continue their journey.

(Page 75) *(Bill Bruce in the Trans-Continental Race.)*

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TRANS-CONTINENTAL RACE

By MAJOR HENRY H. ARNOLD,
AIR CORPS

AUTHOR OF

"Bill Bruce and the Pioneer Aviators," "Bill Bruce, the Flying Cadet," "Bill Bruce Becomes an Ace," "Bill Bruce on Forest Patrol," Bill Bruce on Border Patrol," etc.

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THE AVIATOR SERIES

ADVENTURES OF A YOUNG AIRPLANE PILOT
FOR BOYS 12 TO 16 YEARS

By MAJOR HENRY H. ARNOLD
AIR CORPS

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Bill Bruce, the Flying Cadet
Bill Bruce Becomes an Ace
Bill Bruce on Border Patrol
Bill Bruce on Forest Patrol
Bill Bruce in the Trans-continental Race

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CHAPTER I

ECHOES OF THE FIGHT ON THE BORDER

"WELL, look who's here. We were just talking about you."

The officers of the 9-th squadron were seated around a table in their recreation room at Calexico when Lieutenant Bill Bruce entered. Bob Finch had been telling the other officers about Bill's experiences during the World War, and stopped to greet Bill as he entered.

Bill Bruce had undergone adventures which made his boyhood friend, Bob Finch, quite envious. These adventures had started at Ground School at Berkeley, California, and had continued without any appreciable pause until Bill had reported to Rockwell Field, San Diego, for duty after the signing of the Armistice.

It seemed that no matter which way he turned he always encountered the same enemy, John Andre. At the Ground School Andre had tried to have Bill expelled for trickery. Later at an airplane factory where Bill was a test pilot, Andre had tried to disable the first airplanes of the latest type produced, so that they would never be turned out in quantity, and incidentally, Bill Bruce would be killed while testing them. On board the ship while sailing for France, Andre again appeared on the scene and at night signalled with lights to a German Sub which later sank the Suscania. While the survivors of the transport were struggling for their lives in small boats and on rafts in the high seas, Andre again made his appearance after having been taken aboard the "U" boat, and threatened to blow up the small boats if Bill Bruce was not immediately turned over to the Sub as a prisoner. Bill, at the time, was supposed to be the messenger carrying the plans for the latest type airplane, the Le Pere, to France. Bill was saved by the timely arrival of British destroyers.

Bill thought that he had seen the last of his old arch enemy when he reported for duty at Rockwell Field. However, he was destined to meet his antagonist again. The 9-th squadron to which Bill was assigned, was ordered to Calexico for duty patroling the border.

Having taken station at Calexico, the pilots found that they had some real work ahead. Liquor, dope and unauthorized Chinese were being smuggled into the United States. A gang of renegades had been formed in Mexico for the purpose of this smuggling. This gang was headed by a more or less mythical leader called Andrajo, who later turned out to be Andre. However, he was not so identified until after the squadron and other border officials had operated against the gang for some time, and had defeated two attempts to smuggle Chinese and one attempt to smuggle dope into the United States.

Andre had not shown any desire in any of these smuggling attempts to satisfy any personal grudges against Bill Bruce. They were direct attempts to break through the border patrol with large sums of money as the goal to be gained. The profit from smuggling dope across was enormous, and also the Chinese were willing to pay from four to six hundred dollars a piece to get across.

For a while the dope smuggling had been carried on without the officials being able to stop it. It was not until the 9-th squadron had been called in to assist that a large load was captured and the ring broken up. As long as the smugglers had used ships, automobiles, wagons and people to carry the dope the ground officers could handle it, but when the airplane was used as a means of transportation they

were unable to cope with the problem successfully.

It was then that Inspector Dick of the Internal Revenue Department had called upon the 9-th squadron for help. Captain Smith and his officers soon decided that the dope was being carried across in a Junker airplane and dropped to waiting men by parachute. Thus the plane always arrived at its home airdrome without the slightest evidence in sight of what its real mission had been.

Smith and his pilots formulated a scheme by which the pilot in the Junker would be caught in the act of dropping the dope. They had but slight hopes of catching the men in the waiting autos on the ground. In the actual performance of their scheme, everything worked out far beyond their highest expectations. The Junker was trailed by Bill Bruce in his airplane, and Inspector Dick, in riding the rear seat, had actually caught the parachute and dope while falling through the air. However, the Junker pilot, seeing what was going on, had dropped down so low that he had forced Bill Bruce's plane down in a crash in an orange grove.

Smith had followed the automobile, and had caused the arrest of the other members of the gang by dropping a note in a nearby town giving a description of the car and its occupants and the route that it was traveling. Fortunately, the note was delivered to the sheriff, who caught the men as they

came toward the town. The results might have been different, however, had not Smith sprayed a few machine gun bursts around the car when the occupants started to shoot it out with the sheriff.

The Junker turned out to the Pacific Ocean. It was followed by ships from the 9-th squadron. The Junker ran out of gasoline and fell into the ocean. Kiel was sure that Jacobs, the pilot, had not been picked up by any of the fishing boats which rushed toward the scene of the accident. That was the last of the dope ring.

Then several Chinos had been caught trying to get across the border in the ice boxes of refrigerator cars. After that Andrajo had issued a defy to the border officials and to the squadron. He had boasted that he intended to run four or five hundred Chinos across in spite of everything that could be done to prevent him. Inspector Dick and the officers of the 9-th squadron were determined that this thing would never happen.

The aerial patrols along the border were doubled, and all pilots were given explicit orders to watch for the brigade of Chinos and cut-throats so as to ascertain beforehand just where the attempted crossing was to be made. Bill Bruce went out on the first patrol, and picked up the gang as it slowly worked its way toward the border. At great personal risk, he landed his plane some distance away and secreted

himself and Sergeant Breene, his mechanic, near the trail.

From that position they watched the gang of renegades as they passed. After that it was quite easy to definitely fix the place of crossing, for the trails were few and traversed very rough and mountainous country bordered by an almost impassable desert. That night the squadron made its attack upon the Mexican outlaws by aid of parachute flares. The attack was successful. The attempted crossing was frustrated. It was while making a low diving attack on Andrajo that Bill Bruce had obtained a good look at the face of the outlaw leader in the blinding lights of the flares, and had recognized him as his old arch enemy, Andre.

The pilots seated around the table in the recreation room at Calexico were talking over the fight on the border, Andrajo and his grudge against Bill when Bill Bruce entered the room.

"What were you all saying about me?" asked Bill Bruce, as he seated himself at the rough board bench alongside the table.

"It looks this way to me," said Goldy, one of the pilots in "A" flight, commanded by Bill Bruce. "Andrajo, or Andre, has been after you now for a long time, and I don't think he is going to quit now. I believe that we will see some more of him."

"No, he's through," replied Bill. "We gave them

such a bad walloping over there near High Pass that the band is a thing of the past. Andre was the only Mexican who escaped. Dick and his men scared the others so badly that they will not try it again. As for the Chinos, they are probably running Chop Suey joints and laundries in Ensenado and Magdalena now. Some of them may be running hop houses over there in Mexicali. I think that Andre has had enough."

"Dick surely made them all suffer before he turned them back," said Goldy. "Everytime I looked down on that bunch of reformed bandits sweltering in the sun in that stockade in the desert, I felt glad that I was born white and had no tendencies toward smuggling."

"That shows what you know about the make-up of either the Oriental or the inhabitants of a semi-tropical country," remarked Kiel. "They had nothing to do and all day to do it in. For this work they received three meals a day. They could take siestas without anyone bothering them. It was the life which they would naturally select."

"Yes, three meals a day, and all of them alike, a little water and some dry bread," replied Goldy. "If it had been Chile Con Carne, or Chop Suey, I would agree with you. They certainly lost no time in disappearing over the hills toward the south when they were released. That did not indicate that

they enjoyed their enforced stay in the United States very much."

"I wish that I had been in Bill's place," said Maxwell. "If I had been, Andrajo would now be resting quietly in a bed covered by sand."

"You were blind like all the rest of us except Bill," said Goldy. "We all knew beforehand about that wonderful horse that he rode. Did you look for it? No. None of us saw anything but the bunch of Chinos and Mexicans huddled together with their hands up in the centre of the valley. That horse could have been seen for miles it was so distinctively marked. In the meantime, Andrajo, from his safe position away from the flying bullets, ran to his horse and made his get-away."

"Bill, we think that you ought to be rewarded for your part in that fight," said Kiel. "We have chipped in together, and at great trouble and expense, secured a memento of the occasion for you."

Kiel put his hand into his pocket to take out the present. It was obvious to everyone except Bill that Kiel was the only one who knew anything about what was going on, but Bill was too busy watching Kiel to see the looks of surprise and bewilderment which passed over the faces of the others.

Kiel withdrew his hand, but kept his palm upward, thus concealing the contents. He arose and walked around to where Bill Bruce was sitting. Bill held

out his hand and received the gift. He could feel something wiggle around in his hand. It was cold, and rough to the touch. He was startled, and tried to drop it, but Kiel kept his hand in such a position that he could not.

When Kiel was sure that if Bill dropped the gift it would fall on the table, he released his hand. Bill sat there holding a horned toad. The pilots roared with laughter as they saw the look of discomfiture spread over Bill's face. Horned toads were quite numerous around the camp, but up to that time Bill had never touched them. The other officers picked them up and played with them, but Bill had always felt an aversion to them. He dropped the horned toad and it scuttled across the table.

"What's going on here?"

Inspector Dick entered the room, and his question stopped the laughter momentarily, as the pilots turned to see who had spoken.

"We just gave Bill Bruce a present so that he could remember the High Pass operations," said Kiel.

"He does not look as if he appreciated it very much," said Dick, as he joined in the laughter.

"Have you heard anything more from Andrajo?" asked Goldy.

"That's what I came over here for," replied Dick, as he seated himself. "Where's Captain Smith?"

"Over in his office," replied Bill. "I'll get him."

CHAPTER II

A SOUVENIR OF THE FIGHT

"I HAVE something to give you, Bill," said Dick. "You had better stay here and let someone else go for Captain Smith."

"I'll go," said Goldy, and started out the door with Dick.

"I don't want any more horned toads," called Bill.

"This is something that you said that you wanted," replied Dick.

Bill waited impatiently until Dick returned carrying a large package so well packed that it was impossible to determine what it contained.

"Let me tell the others about it, Bill," said Dick. "Then I will show them what it is.

"After the fight at High Pass you said that you would like to get the sombrero belonging to Andrajo, as I call him, and Andre, as you call him. As you remember, we could not find the sombrero the next morning. Evidently Andre, or Andrajo, returned to the scene of the fight after the last parachute

flare had burned out. The men on the ground thought that they heard, from time to time, the sound of horses stamping. That must have been Andrajo watching our activities from the darkness.

"As soon as you regretted that you had not secured that sombrero, I asked my men to make a search around the scene of the fight, and see if they could find it, but they were unable to locate it. At first we thought that we were looking in the wrong place, but a more careful search did not produce the sombrero.

"Then I sent word into Mexico to a fellow who does a lot of under cover work for me that I wanted that sombrero. Gomez is a Mexican, but he is absolutely loyal to me. He does anything that I tell him if it is humanly possible. So when I sent in word to get the hat, I was almost sure that he would get it.

"Yesterday I received a package from Mexico. Gomez sent it to me with his report of conditions on the other side of the border. He did not give all of the details of securing it, but told enough so that I know he had quite a job in getting it.

"Up to that time Gomez had never seen Andrajo. In my letter I told him of Andrajo's treacherous activities during the World War. That was enough to make Gomez determined to get into personal con-

tact with Andre. Evidently it was quite a job, for the bandit was lying low, just why Gomez could not at first determine. Afterwards he found out that one of your machine gun bullets clipped Andre through the shoulder and he was recuperating in a little town called San Tomas.

"A few days later he arrived in Ensenado and started out trying to enlist another gang of outlaws to break through the border patrol. He found this rather hard, as the report of the fight at High Pass had dampened the ardor of most of the peons. Those who returned from the fight, in order to make heroes out of themselves, exaggerated what happened about a thousand per cent. Accordingly, it looked like an impossible task for any gang to break through.

"Andrajo grew despondent as the days went by and he could not get any recruits. He took to drinking. It was then that Gomez found him for the first time. Prior to that, Andrajo had been very careful to keep out of sight and maintain that mystery which had always surrounded him. Gomez met him in a cantino and after filling him up on equila, departed with the sombrero. Here it is, Bill."

Bill Bruce had only seen the hat from the distance, but it was a most striking looking one. Bill decided that it would look well hanging on the wall of his room. When he expressed a desire for it

he only half expected to ever get it. Now it was his. He could hardly wait to unwrap the package.

When the paper was removed everyone there was astonished at its splendor. The sombrero was of the ten quart type with a high crown coming to a point. It was made of gray felt. Andrajo had secured a cord of silver and gold braid which he had twined around the hat band. Dangling from the edge of the wide brim he had suspended two dozen or more silver pesetas with silver chains. Each peseta hung by itself a scant quarter-inch from the lower side of the rim.

It was a beautiful piece of work, and each officer in turn took it and admired it. Bill was speechless. He could not think of anything to say. It was Kiel who finally broke the silence.

"Why didn't you ask for his saddle and bridle, too? They had silver mountings on them."

"To tell the truth, I never expected to get this," replied Bill. "I want to thank you, Dick. I certainly appreciate your efforts. Please tell Gomez that I hope I can do as much for him some time."

"Gomez considers that part of his work," said Dick. "You see, several years ago I managed to keep him from suffering punishment for something which he had not done. He was not particular enough about the companions he chose. Ever since then he would do anything that I asked."

"My, what a pretty bonnet," said Goldy, as he came in the door with Captain Smith. "Where did you get it, Bill?"

"Sent to me by Andre, with his compliments," replied Bill.

"Bill can tell you about that later," said Dick. "I have another mission to perform here. The hat was just part of it."

"Well, spill your stuff," said Smith.

"I've just been telling the boys here about one of my men, Gomez. He gets me all of the inside information of what's happening on the other side of the border. Naturally, Gomez is not the name that he uses over there. If it was ever discovered that he furnished information for my department, his life would not be worth two cents.

"I received a report from Gomez today. It contained some items which I think you men should know. In the first place, our old flying enemy, Jacobs, was not drowned."

"What, not drowned?" interrupted Kiel. "I could have sworn that none of the rescue boats arrived on the scene until the plane had sunk out of sight."

"Probably true," replied Dick. "He jumped out and started to swim for shore. He was quite a distance away when the United States fishing boats arrived there. He was picked up by a Jap fishing boat, and taken to Ensenado. He must have had

a very close shave, for he was a wreck when he arrived in port."

"One of the first men that Andrajo met when he recuperated from his wound at San Tomas was Jacobs."

"Don't tell me that you hit Andre, Bill," interjected Goldy. "It's a darned shame that you didn't put him where he couldn't recuperate."

"In any event," continued Dick, "Jacobs went to San Tomas and returned with Andre. They are now working in cahoots. Needless to say, when two rascals like that get together, they are planning some devilment. When they arrived at Ensenado, they tried to recruit another smuggling gang, but the fight at High Pass had put the fear of God into the peons, and they could not get away with it."

"You don't think that there is any chance of them getting another gang together then?" asked Smith.

"Not a chance in the world," replied Dick.

"We should worry about them then," said Goldy.

"I don't think that either Jacobs or Andre will come into the United States openly," said Dick. "If they did, we have enough on them to put them away in the pen for a while."

"I am sure that they won't try to use an airplane again," said Bill.

"Things have been too quiet along the border," said Dick. "The only thing that we have had to

break the monotony was the capture of those rum-runners last week. That kept us busy for a few hours, but then it was all over. By the way, Smith, have any of your patrols ever noticed anything suspicious South of Yuma?"

"Not a thing," replied Smith. "The pilots always come in with the same remarks, 'Plenty of sand hills, quite a little heat, a few stray cattle, an occasional cow-puncher, and the endless track of desert which extends from Yuma to the head of the Gulf of Mexico.' The patrols have deteriorated into routine flying again."

"Corley says the same thing about his job at the gate," remarked Dick. "Nothing but the routine examination of a few cars as they stop for inspection. It has become so that now we seldom find anyone even trying to bring a bottle of rum across. Corley is getting just as restless as your pilots. By the way, Bill, what happened to you on your patrol yesterday?"

"I thought that I had plenty of gas, but I didn't," replied Bill. "I have been flying long enough now to know that it takes gasoline to keep an engine running, but I guess I don't. I landed all right at Yuma, but for a while on the way over I thought that I was going to get a free lunch. There were quite a few clouds, and it looked as if it might rain. If the sun had not broken through the clouds when

it did I would have gone into the hotel with its sign, 'Free Meals on any Day that the Sun Does Not Shine,' and demanded a free lunch. However, they were saved that expense when the sun broke through the clouds just as I arrived at the hotel.

"After lunch I went out to the field and forgot to ask Breene about the gasoline. He did not put any in the tanks, as he did not know that I had flown the plane for an hour and a half the day before. We took off, and after we had flown for a while, the engine quit. We were about twenty miles from here. It looked as if we might have to land in the desert, but I had quite a bit of altitude, and tried to make it in here on my emergency tank.

"We almost made it, too. We landed just outside the town limits in a lettuce patch. The farmer was quite peeved about the damage we did to his lettuce. It was some time before I could convince him that the government would recompense him for any damage done. I asked him to sign a statement putting the damage at $75.00, but he objected. He said that $200.00 would not cover it. We finally reached an agreement at $100.00. I took off, and probably damaged as much more lettuce, but the $100.00 ought to cover it all. Anyway, the lettuce market is way low now, as it is long past the season."

"What do you think ought to be done with reference to Andre and Jacobs?" asked Smith.

"Well, judging from what they have done in the past, I wouldn't put anything beyond them," replied Dick. "Could they do anything to your planes? Gomez said that they were particularly anxious to get back at your squadron for spoiling their plans."

"Andre certainly has had enough experience along that line," said Bill. "He came mighty near ruining me at Buffalo."

"I would have your men watch for strangers hanging around," said Dick. "I wouldn't let anyone near your planes."

"We don't run much of a guard now," replied Smith. "As a matter of fact, it would be rather hard to keep anyone away who came with the one purpose of damaging the planes. The hangars are quite flimsy, the lights are poor along the hangar line, and it would take all my men to properly guard against sabotage. We will have to meet this problem by making extra careful inspections before a flight is made."

"He will try and get you first, Bill," said Goldy. "I am glad that I am not flying airplane number 1."

CHAPTER III

PREPARING FOR THE RACE

Nothing of importance happened for several weeks to break the routine of the squadron personnel at Calexico. Bill took his regular turn on patrols with the other pilots of his flight. When they were not on patrol they were all busily engaged in regular squadron training. The two flights started a friendly rivalry as to which was the best. Kiel spent hours with his flight teaching them to fly a perfect formation, use their radio properly and navigate across country so that they would be ready for any mission for which they might be called.

Bill Bruce spent an equal amount of time with his flight with the same end in view. The two flights were both so well trained that it would have been difficult to state which was the best.

Nothing further was heard from Andrajo or Jacobs. The pilots knew that they were still in Mexico, but that was about all. Occasionally Dick would make a visit to the flying field and during the

course of conversation mention the fact that he had heard from Gomez, and that Andre and Jacobs were still in or around Ensenado.

The pilots had forgotten that either one held a grudge against the squadron. The extra guards which had been placed around the hangars were taken off. The pilots were again living a normal life.

This was the condition existing when, one day, a newspaper man came out to the squadron and stated that he had heard that there was going to be a trans-continental airplane race.

"Captain," asked the reporter, "are you going to have any men entered in the race?"

"I really can't say," replied Smith. "This is the first that I have heard about it. Tell me something more."

"I don't know very much," replied the reporter. "The dispatch from Washington stated that there was going to be a trans-continental race from New York to San Francisco and return, and one starting from the West coast at the same time. The race is going to be round trip from both ends. Beyond that I have no details."

"In all probability we will hear something official soon," said Smith. "When we do I will let you know. In the meantime, I guess you will have to be satisfied with the statement that if they are per-

mitted, all the pilots in the squadron will enter."

The reporter went away feeling that Smith was concealing something, but such was not the case. The official statement had been released in Washington before the pilots of the 9-th squadron had been informed of the race. The pilots were very much excited. For the rest of the day the race was the subject of all conversation.

"What chance have we with our DHs against the Le Peres and the pursuit planes?" asked Goldy, as the officers sat in the shade of one of the hangars.

"They are faster than the old DH, but give me a DH every time for reliability," replied Kiel. "The old Liberty engine will still be running when the Hispanos are in the junk pile."

"That will be all right if the stops are far enough apart," said Bill. "What about a race where we have to stop every hundred miles? How will our DHs compare with the pursuit ships then?"

"I will still take a DH by choice," replied Kiel.

"I wonder how bad it will be crossing the Rockies," said Bill. "As far as I know, no airplane has ever crossed the mountains between Cheyenne and Salt Lake City. Do you think our planes will be able to climb high enough to go straight across, or will we have to go through the passes?"

"I wouldn't be surprised if we all had to go

through the passes anyway," replied Goldy. "It starts snowing up there in the early fall, and they can't get the race started now before the first of October at the earliest."

Thus the conversation continued. All of the features of the race were discussed long before any of the conditions were known. The pilots had decided the proper way to streamline the DH to get the most speed, the most direct course to fly, how to get through the mountains, and what to do in case of a heavy fog lying along the Mississippi Valley, by the time they went in to their supper that night.

The next morning the officers were all up early, waiting for some word to come regarding the race. They knew that the telegraph office would not be open before eight o'clock, but they hoped that the information would come in by radio. All during their breakfast the topic of conversation was the race. It was the last word spoken before the pilots left on patrol.

Finally, shortly after eight o'clock, a telegram came for Captain Smith. Before it was opened the pilots knew that it told of the coming race. They gathered around Smith as he read the wire, eagerly watching his face for some sign of what was to be expected. Finally Smith looked up.

"Well, boys, this is it," he said. "There is not

much detailed information. It confirms what the reporter told us yesterday, states that service type planes will be used, no changes of rigging or inherent parts of the plane will be allowed, three pilots will be selected from this squadron and that details will be given to starters at San Francisco."

"How are you going to select the three to enter?" asked Goldy.

"Will I get a chance?" asked Bob Finch.

"I have been thinking that over," said Smith. "I will give everybody a chance to get in if they are lucky enough. We will put all the pilots' names in a hat, and have the squadron sergeant major draw them out. The third, fourth and fifth names drawn out will be named as starters."

The pilots' names were written on slips of paper, and the paper crumpled as it was put in the hat. Each pilot wanted to be sure that his name had not been omitted, and carefully checked the slips as they were made out. The sergeant major was called to take out the slips.

Smith held the hat above his head after shaking it to stir up the names. The sergeant major drew the first slip.

"Lieutenant Kiel," he called.

Kiel was out of the race.

"I hope you make it, Bill," said Kiel. "One of us must start."

"Thanks awfully, Kiel, but I do not know whether I'll be lucky enough."

The second name drawn was Maxwell's. Bill Bruce still was in the running. Smith again shook up the papers in the hat, and the next name was drawn. Lieutenant Steele's name was drawn next. Bill had two chances of going.

"Lieutenant Finch," called the sergeant major, as he drew the next slip.

Steele and Finch had been lucky. Fate had been kind to two of the pilots in the squadron. One of the two boys from Flower City had been selected. Would fortune favor the other one too? Bill did not feel a bit lucky. He turned away while the last name was drawn.

"Lieutenant Bill Bruce," called the sergeant major.

"You lucky stiff," said Goldy to Bill. "I hope that you win the race."

"Select the men that you want to take along as passengers," said Smith. " I have to wire the names of the starters right away."

"I will take Sergeant Breene with me," said Bill as he rushed out the door to tell Breene.

Breene was working on Bill's plane in the hangar.

"Sergeant, how would you like to go along on the trans-continental airplane race?" asked Bill.

"Anything you say, Lieutenant," replied Breene.

"You don't seem a bit enthusiastic about it," said Bill.

"It's all in the day's work, Lieutenant," replied Breene. "We have been through a lot together, and I guess that we can get through this. The old plane is working fine. The engine has just completed its thirty-odd hours, and is well worked in. When do we start?"

"We have to be in San Francisco in four days," said Bill. "Take off the guns, radio and anything else that we do not need, and yet leave the plane a standard type. Streamline the fittings wherever you can. We will leave for San Francisco tomorrow morning. I will help you to get ready."

During the day Bill and Breene worked feverishly on their plane. Bill found it rather difficult to get it in the condition he wanted in so short a time. However, he was consoled by the fact that Steele and Finch had no more time than he did. Each of the three pilots worked on the parts of their planes which they considered most important. Steele and his mechanic spent most of their time on the engine and its accessory parts. Bob Finch worked on streamlining the parts which he thought had the most head resistance. Bill worked on both his engine and the streamlining. Steele had the idea that a reliable engine would win the race.

Finch thought that speed would win. Bill was of the opinion that a combination of both should win.

It was late in the night before they left their planes. The search light truck had been throwing its beam on the planes for several hours when the pilots admitted that there was nothing more to be done.

"You will leave at six o'clock," said Smith, as they returned to their quarters. "My advice is to take enough clothes with you to last a few days in San Francisco, but don't take any more than you need when you leave there. Every ounce in the plane will tell on its speed. Good night."

"Good night, Captain," called Finch and Bill together.

The next morning Bill overslept. He was awakened by the roar of an airplane engine. His first thought was that it was six o'clock, and that Steele and Bob Finch were leaving without him. He looked at his watch. It was just five-thirty. He had thirty minutes in which to dress, get something to eat, and get started. He hoped that Breene had not also overslept.

Steele and Finch were leaving the dining room as Bill entered.

"You had better shake a leg or you will be late starting," said Steele.

"I'll be there in time," replied Bill. "Bring me

something to eat, anything that you have ready," he called to the waiter.

Bill hurried through his breakfast and ran out to his plane. Steele and Finch were already there.

"Start the engine, Breene," Bill called, as he came up to his plane.

"Off, on and up," shouted Breene, from the pilot's cockpit.

The mechanics pulled the propeller through and the engine started with its customary roar. Bill hurriedly put on his flying togs. Steele was signalling for the blocks to be pulled from the wheels of his plane. Finch was standing by waiting to start. Bill climbed into the cockpit.

"It's no use, Lieutenant," said Breene, as he climbed out. "The oil pressure has dropped to zero."

Breene cut the switches, the engine stopped and Bill reluctantly walked over to Captain Smith.

"My oil pressure is gone, Captain," said Bill. "I will have to wait until it is fixed. I will be there in time to start, though."

"Tough luck, Bruce," said Captain Smith. "We'll get you fixed up in time."

Steele and Finch took off, leaving Bill Bruce standing on the airdrome staring after them.

CHAPTER IV

TREACHERY

Bill was very much disappointed in not being able to accompany Steele and Bob Finch when they left Calexico. Just what was the matter with his plane he did not know, but he felt sure that the trouble could be remedied so that he could start some time later in the day.

He turned back to his plane and found Breene already working with two other mechanics taking off the cowling. There were several things which might cause the oil pressure in the engine to drop. No oil in the tank, a break in the line, improper functioning of the oil pump and a stoppage in the line were the most probable.

"Look and see if there is any oil in the tank, Sergeant," said Bill.

Breene took the cap off the tank and inserted a stick. When it was withdrawn it showed that the tank was almost full. Obviously there must be some other reason for the trouble.

An hour passed and they were no closer to the

solution than when they started. As the time passed the chances of Bill and Breene reaching San Francisco grew less. The lines were checked from the tank to the engine, but nothing could be found wrong. Bill decided that something radical would have to be done or the trouble would never be located.

"Take out the tank, sergeant," he ordered. "Possibly something has stopped up the outlet."

"Very well, Lieutenant," replied Breene. "But it will take a couple of hours to put in another one."

"That's all right," said Bill. "We are not getting anywhere this way."

They started to drain the oil from the tank, and found that it came out very slowly. Obviously there was something which impeded the flow of oil. It must be in the tank. Breene disconnected the oil line from the bottom of the tank, and saw a piece of cloth hanging from the outlet.

"Look here, Lieutenant," called Breene.

Bill came around the plane and saw the piece of rag.

"I wonder where that came from," said Bill. "It must have been put there last night, for the engine worked all right yesterday."

"That's what I was thinking," replied Breene.

"Pull it out," said Bill.

They tried to pull the rag through the outlet,

but it was wedged in so tightly that they could not move it.

"There must be a large piece in the tank," said Breene. "I'll get a piece of wire and see if I can get it out."

He returned with the wire and began fishing in the tank for the cloth. In a short time he had hooked it and began pulling it out. This, however was difficult on account of the part wedged in the oil outlet. Finally a large piece tore away. Breene threw this to the ground and began fishing for the remaining piece.

Bill stooped down to see what kind of cloth it was, in order to get an idea where it came from. As the oil ran off, he saw that it was a piece of white calico. He was about to turn away from it when he saw what appeared to be large letters on the cloth. A closer examination proved that to be true. One word only was legible on account of the crumpled way in which the cloth had fallen to the ground. Bill studied it and read "alive." Bill moved the cloth around and spread it out. As he unfolded it five words came into view. They read "You will not return alive." Was there more? Bill did not know. What did it mean? Who had printed this message on the cloth? Evidently the same person who had put it in the tank. Bill decided that he would get the rest of the cloth before

saying anything about the words. He turned it over on the ground.

"Can you get the rest of it, Sergeant?" he called.

Breene was pulling on the rest of the cloth while another mechanic was poking that part back which protruded through the oil outlet. Finally the entire piece came out. Before Bill could stop him Breene had wadded the cloth into a ball and threw it as far as he could.

"Wait a moment," cried Bill, but the cloth was already sailing through the air.

"I have seen enough of that shirt tail," said Breene.

"I want to see if I can find out where it came from," said Bill.

He walked across and picked up the cloth. It had rolled in the dust so that he could decipher nothing. He took it to the gas truck standing nearby and washed the oil and dirt away with gasoline. After spreading it out on the ground he read the rest of the message, "from this flight. Andre."

Bill was astonished. He did not know whether to believe that Andre had really come across the border during the night and packed that rag in the oil tank, or whether some of the men in the squadron had taken this opportunity to go crazy. He knew of no reason why any of the men in the squadron should hold a grudge against him. The only

logical reasoning was that Andre had visited the airdrome during the night and had done the dirty work himself.

Bill carried the rag back and put it with the other half. In a nearby hangar he saw Captain Smith.

"Come here a moment, Captain," he called.

When Smith arrived Bill had laid the two pieces of cloth together so that the entire message could be read, "You will not return alive from this flight. Andre."

"This is what plugged my oil line," said Bill.

Smith looked at it in amazement. He could not believe his eyes.

"Why, it can't be true," exclaimed Smith. "That fellow is down in Ensenado. He couldn't have done it."

"I think that he did," replied Bill. "He must have come across last night and slipped into the hangar when the guard was at the other end of his post."

"There is Goldy," exclaimed Captain Smith. "He might be able to help fathom this mystery. Goldy come over here. You were O.D. last night. Get hold of the sergeant of the guard and see what you can find out about this cloth in Bruce's oil tank," said Smith. "Bruce, I would advise that you take that tank off and put another on."

"I am going to do just that," said Bill.

By this time Breene and the other mechanics

sensed that it was not an ordinary piece of cloth which had been fished from the tank. They came around and were standing alongside Bill reading the warning.

"That would not have done us any good, Lieutenant," said Breene. "If I had not run the engine while you were late getting here we would have probably been in the air when the oil line plugged solid. Then we would not have been able to read it."

"He must have punched that rag in there with an iron rod to get it into the outlet," said Bill. "We will have to put in another tank."

"He made a good job of it," said Breene. "I will start in on the new one right away."

"I'll say he is a persistent cuss," remarked Smith.

If Andre had time to do that much to the plane it was probable that he had also done other things. The clogging of the oil line might not be so very serious in flat country like that in the Imperial Valley. Bill thought things over for a while and then decided to make a thorough inspection of the plane.

He was about to start when Goldy returned with the sergeant of the guard and one of the sentinels.

"I have talked this over with all the members of the guard," said Goldy. "The sergeant saw nothing suspicious himself, nor did he have anything sus-

picious reported to him. Private Evans was on post between two and four this morning and after thinking things over knows something that may be connected with your warning message. Tell us what you know, Evans."

"I went on post at two o'clock," said Evans. "I think that it was while I was making my second or third turn around the hangars that I had the feeling that I was being followed. I turned quickly and thought that I saw someone dart into the shadows near this hangar. I came right back, but when I arrived here there was no one in sight. I stood right here for quite a while listening, but did not hear a sound. Then I was sure that it must have been my imagination.

"It must have been thirty or forty minutes later when I was walking past on the other side of the hangars that I thought I saw someone dart back into the shadows as I approached. Once again I made a careful search around the hangar here. Then I heard something moving over there toward that field and came around the corner of the tent to see what it was. Just then a dog came out of the darkness toward me and my suspicious feeling disappeared."

"According to that," said Captain Smith, "Andre must have been in the hangar for thirty or forty minutes. He might have been working on the plane

all that time, or he might have been waiting for a chance to get away without being seen. In either case, we had better try and find out if he has done anything else to cripple this plane."

"I do not trust that fellow after what he did to the planes during the World War," said Bill. "Things were different then, though. He had entire days and nights to get in his dirty work. Here he had but a short thirty minutes."

"He could do a lot in thirty minutes if he had the desire," said Smith. "I wish that I had been there to catch him as he came out of the hangar."

"I would have liked to have been there myself," said Bill. "However, that wasn't my luck. Now I must get this plane fixed up so that I can get started for the race. Help me look her over, Goldy, will you?"

"Sure," said Goldy. "Where do you want me to start?"

"You start with the tail surfaces, while I work on the controls and wings," replied Bill.

"He was surely after you," said Goldy in a few minutes.

"What have you found," asked Bill.

"Every cotter key has been removed from your elevators and rudder," replied Goldy. "I must say that he is thorough in his work. He might have left one or two in just for samples."

"He has cut the shock absorber cord on the landing gear, too," said Bill.

By this time Goldy had gone to the ailerons at the wing tips.

"Yes," said Goldy. "He was making sure that you would never get away from the ship alive, for he has removed all the cotter keys from the ailerons, too. You wouldn't have had a single control after you had been in the air for a few minutes. The control surfaces would all have worked loose and jammed. I'll say that he is a fast worker to get all that done in a few minutes."

Bill was up against it. He could not possibly get his plane in condition to fly that day. He did not want to take any of the other planes. They might have been damaged also. If everything went along well he could get away the following morning. That would still give him plenty of time to get to San Francisco. However, if many more damaged parts were found he might not get away for another two days. What should he do?

"You'd better take my plane," said Captain Smith.

"Have you looked at your plane?" asked Bill. "For all you know, yours might be in worse condition than mine."

"That's an idea," said Captain Smith. "I never thought of that. However, Andre has been after

you now for over two years. He has not as yet made my acquaintance. I think he has concentrated on your plane."

"I hope so," said Bill. "However, I will stick to my plane."

Bill started to work checking up every part of the plane. It was a tedious job, but one on which his life depended. If he found all the damaged parts his flight to San Francisco would be safely made. If not, there was no telling what would happen.

CHAPTER V

A BELATED START

THE efforts of all the available personnel from the squadron were concentrated on Bill's airplane. Each damaged part was repaired as it was found. Andre had made a thorough job of his acts of sabotage. Every control on the plane was fixed so that it would have become inoperative soon after the plane left the ground.

During the early afternoon Inspector Dick came out to the airdrome. He had heard of Andre's stealthy visit to the hangars and its sinister results. He came out to express his sympathy to Bill, and to see if there was any help he could give. He found Bill in a very pugnacious frame of mind.

"A fine border patrol you run," said Bill. "What's the use of having men guarding the border if they allow an arch criminal like Andre to come across without interference? I thought that you said you wanted to catch him. You had your chance last night, but little use you made of it."

"Whew, what a way to greet a friend," answered

Dick. "Hold up a moment. Does it occur to you that you are the only man around these parts who has seen Andre? Have you ever given out even as much as a partial description of him? You know we are not mind readers. It is unfortunate that I did not think to get his description from you before. Even if I had, there is no assurance that we would have caught him. He might have come across the border many miles from here."

"I beg your pardon," said Bill. "I am sore at having my plane damaged just when I should be starting for San Francisco. I will give you a complete description of Andre, then perhaps he may be caught."

Bill then described Andre as well as he could. Naturally he had aged and had acquired certain characteristics which were unknown to Bill, but the color of his eyes and hair, his height and facial features could not have changed materially since Bill first knew him.

"Did they damage any of the other planes?" asked Dick, when Bill had finished.

"As far as we can find out he did not touch any of the planes but mine," replied Bill. "He did enough to mine to require the services of an undertaker had I ever gone into the air with it. He wasn't taking any chances. I hope that he comes back to-night. We will be laying for him."

"Put yourself in his place," said Dick. "Would you return to-night and take a chance of having the entire squadron out waiting for you?"

"I can't say that I would," replied Bill. "Andre is a different kind of animal, however. He seems to thrive on being caught in tight places. It wouldn't surprise me in the least to have him steal across that field and try to enter the hangars when the guard was at the far end of the tent. We will be waiting for him, though. I hope that he does come."

"You don't want to forget one thing," said Dick. "In all probability Jacobs is working with Andre. Don't let one of them get in while the other is attracting the attention of the guards."

"That's an idea," said Bill. "We will be ready for any number of them. I must admit that I had not even considered Jacobs."

It was almost dark when the mechanics reported that Bill's plane was all ready to fly again. The guards were doubled. Additional lights were placed at strategic points around the hangars, and the men went to their quarters.

Bill took it upon himself to make frequent visits to his plane. Nothing unusual occurred by ten o'clock, so Bill went to bed. He could not sleep at first on account of the worry about his plane. Finally he dropped off, only to be awakened by the sounds of pistol shots.

Bill rushed out toward the direction from which he thought they came. He found Captain Smith standing in the shadows by the side of the hangar housing Bill's plane.

"What's it all about?" asked Bill breathlessly.

"I was standing here talking to the guard when we saw someone moving across that field," replied Smith. "I told the guard to let him come closer, but the sentinel became nervous and could not wait. He took a couple of shots at the man. He did not have a chance in the world of hitting him. The man jumped up and ran away. That's all there is to it. You go back to bed. We will watch your plane. I'm going to stay up the rest of the night."

"I'll turn in, then," said Bill, and returned to his quarters.

With Captain Smith on the job there was nothing more to fear, and Bill was soon asleep. He was awakened the next morning when Goldy came in and grabbed him by the arm. At first Bill thought surely something was wrong.

"It's time to get up," said Goldy. "Your plane is O.K. We had no more unwelcome visitors last night after the one Captain Smith saw. Everything was quiet after that one spasm."

"I certainly appreciate what you fellows have done," said Bill. "From the interest that Captain

Smith and you took, it might just as well have been your own planes."

"I want someone out of this squadron to win that race," replied Goldy. "We will have a much better chance if we have three planes entered than if we have only two. You have just got to get your plane there in time to start. Hop to it and get going."

Once again Bill packed his musette bag, put some things in a small hand bag, and went to get his breakfast. The other pilots were sitting around the table when he entered.

"Well, Goldy says that you are all set to get away this morning," said Captain Smith. "I hope that he is right."

"I wish that the sentinel had allowed that rascal to crawl right up to the hangars last night," said Goldy. "You might not have been able to hit him with your pistol, but you surely could have run him down on foot."

Breene had started the engine in the plane before Bill was through with his breakfast. Bill carried his bags out to the plane and stowed them away. He then motioned for Breene to shut off the engine. When the propeller stopped turning Captain Smith and Bill made a thorough inspection of the plane. They could find nothing wrong. Evidently no one had broken through the line of guards during the

night. He was all ready to start. The others had a twenty-four hour start on him, but he still had time enough to get to San Francisco to start in the race.

Bill donned his flying togs, climbed into the cockpit and motioned to the mechanics to pull the "prop" through. In a few moments the engine was roaring out its ear-splitting tune. Bill tried the engine out at all speeds and was satisfied with it. Breene climbed in the observer's cockpit, and they were ready to start.

Captain Smith and the other pilots waved him the good luck signal as he taxied down the airdrome to head into the wind. Another turn at the end of the runway and the plane was moving down the field with the throttle wide open. Bill was still somewhat nervous about the plane. What if there was something that they had missed!

The plane took the air and Bill headed up the Imperial Valley. He looked over the different controls as they sailed along. Nothing seemed to be amiss. There were no undue vibrations. Everything was functioning properly. The plane seemed to be in just as good condition as it had been prior to Andre's dastardly work.

Bill soon found that he was bucking a North wind of fairly high velocity. He quit climbing his plane, stopped thinking of what might be the matter with

it, and concentrated on making the best possible speed against that adverse wind.

He dropped lower and lower, for as he went farther North the wind became stronger. A regular gale was blowing at the three thousand foot mark where he had been flying when he first started out. He decided to cut straight across the desert to save time. Finally he was flying over country where the habitations were few and far between. He did not mind, as his engine was working like a clock.

Salton Sea appeared well off to his right. The country beneath became more and more mountainous. He had to climb to miss the hill tops. The rough ground beneath made the air quite rough. He was in a quandary. If he continued at his present altitude it was going to be a rough unpleasant trip. If he went higher the wind would cut down his speed materially. There was one other thing to do, cut across to the railroad where the country was smoother and he would not have to fly so high. That would add fifty or more miles to the trip, but the air would be much smoother.

It did not take Bill long to decide what to do, for at that moment he was hit by a terrific bump. The plane tipped up on one wing, hung suspended for a moment, and then dropped like a rock. It seemed to Bill that they would surely strike the

mountains beneath. He looked down to see what kind of country was below. There was nothing inviting about it. Sharp, rough, tilted ridges with no level ground in sight.

Bill fought to regain control of his plane and level it out. For a while the controls were ineffective. He thought that they had been tampered with again, and looked to see if they were answering to his stick. He moved the stick back and forth. The controls answered. The plane was all right, but the air was all wrong. He would get out of there right away.

The mountain tops below came closer and closer. There must be a bottom to this pocket somewhere. Bill held his controls in the proper position to bring the plane to an even keel and waited. Finally the downward movement stopped. The plane took up its normal position and Bill turned toward the Salton Sea.

As they approached the level ground alongside the Salton Sea the air became smoother. The bumps did not disappear altogether, but they were not so violent. Bill turned slightly to the North again as he saw the end of the water and the railroad getting closer. He was watching the surrounding country when he had a feeling that something was not quite right with the engine.

He made a hurried examination of his instru-

ments. The water in the radiator was boiling. There was no doubt of that, for he could smell the heat and see the water flying alongside the plane, and the indicator of the dial was against the stop on the dangerously hot side.

Bill throttled and looked around for a landing place. He did not have enough altitude for much choice. It was a case of getting down as soon as he could in the first available place. Straight in front he saw what appeared to be the dried bed of an old lake. Bill headed the plane for this, hoping that it had dried out sufficiently so that he would not overturn when he landed.

CHAPTER VI

A SANTA ANNA

THE thought flashed through Bill's mind, as he glided toward the dry lake, that fate was against his getting to San Francisco in time to enter the race. First it was the sabotage of Andre, and now it was either a stoppage in his water line or a leak in the system. The results were the same in either case—a delay in his arrival. He had not any too much time at best. He was still a good 450 miles from his destination. However, the task in hand now was to make a safe landing so that he could continue after repairs had been completed.

Fortunately, the old lake bed was large. He did not have to jockey for position as he approached. If the surface was solid everything would be all right. If, on the other hand, it was soft, the wheels would sink into the soil, and the plane would nose over or perhaps turn over on its back. Bill brought the plane down as slowly as he dared. He wanted to drop to the ground with the lowest speed possible,

thus eliminating as many of the troubles which might occur as he could.

The plane came down closer and closer to the ground. The strong North wind made its ground speed almost nothing. As they came closer to the lake bed Bill could see that it was baked and cracked from the heat of the desert sun. The wheels lightly touched the surface, and the plane rolled several yards and stopped.

Bill had cut his switches as he was coming down, and the propeller stopped rotating as soon as the plane hit the ground. There was not a sound to be heard for a while. The hot sun beat down on the heads of the two aviators. They had dressed for the colder climate farther North, and began to perspire freely before they could get out of their seats.

"Well, here we are," said Bill, as he climbed out of the plane.

"It looks as if we have a water leak somewhere, Lieutenant," said Breene.

"Either a water leak or a broken pump," replied Bill.

"We will soon see," remarked Breene, as he went around to the nose of the plane.

He removed the under cowling and was examining the water lines by the time Bill Bruce had removed his heavy leather flying coat. Bill joined him, after throwing his flying togs onto the ground.

"Well, here it is," remarked Breene. "A broken hose clamp."

"Let's see it," said Bill.

Bill took the hose clamp and looked at it. There were no signs of a clear break. All around the place where the metal wire had broken were marks, as if it had been filed.

"This thing has been deliberately cut," exclaimed Bill. "Some one has filed this wire. It looks as if we had overlooked some of Andre's activities."

"We have some safety wire with us, and can fix this," continued Bill, after a pause. "Water is a different matter."

"Quite right, Lieutenant," said Breene, as he walked toward the rear cockpit to get the tool kit.

The hose connection was repaired in a few moments. While Breene was making the repairs Bill scanned the horizon in an endeavor to locate any place where it might be possible to secure water.

"It looks as if we will have to walk back to the Salton Sea for water," said Bill. "I hate to put that brackish water in, but I guess that it will get us in to Riverside."

"How far is it over to the Salton Sea?" asked Breene.

"Must be at least seven miles," replied Bill.

"I saw an old shack much closer while we were

coming down," said Breene. "It's just over that hill there. Perhaps some old prospector or settler found a water hole or spring before he set up his shack."

"It won't hurt to take a look over there," said Bill. "No matter what we do we will waste a couple of hours getting the water here. These radiators hold about fifteen gallons, and we'll have to carry it all. I don't suppose that there is a drop left in the system."

They walked across the dried lake bed, the rolling sand hills, and the rough rocky ridge toward the shack in the desert. From the crest of the ridge they could see the abandoned shack down in a small valley beneath them. There was moisture of some kind around, for there was a touch of green to the sparse vegetation around the building.

"I didn't see this while we were landing," said Bill, as they walked down to the hut. "I guess that I was too busy trying to make a good landing."

"I don't think that this old pioneer, rancher or prospector would have located here unless there was water around," said Breene.

"I hope that you are right," replied Bill. "You can never tell about these desert rats. They go where fancy dictates, regardless of water or food. A normal man would die of thirst or starvation if he tried to live that way."

There were evidences of cultivation all around the shack. Evidently at some time an attempt had been made to create an oasis in the desert. Just what the settler had tried to grow Bill could not make out from the limited traces of plant life. One thing was certain; water must be present in the valley somewhere. As they came up to the old hut they could see that at one time it had been a substantial building. It had only one story, but covered quite a large area. There was a porch along one side and, a short distance away, there was the wreck of another small building.

Bill went toward the small building. The roof had fallen in, but he worked his way through the wreck. He saw a pump in one corner. Around the pump were the remains of what had been a board floor. He stepped on the boards and they cracked. They were too rotten to hold his weight.

"The water is here," called Bill to Breene, who was examining the larger building. "We will have to get some boards to lay over the well or we can't use the pump."

"Coming over," replied Breene.

"This old bird must have been quite prosperous in his day," said Breene, as he came up with his arms loaded with boards.

They covered the top of the well with a double layer of boards, then started pumping. At first they

did not have any success. The pump was completely dried out. They knew that there was water there, for they could hear it gurgle in the bottom of the pipe. Just when they were about to give up, for some unaccountable reason, the water started flowing from the pump.

"Well, Lieutenant, here's the water, but how are we going to get it back to the plane?"

"Didn't you see any buckets, pails or tins around the shack?" asked Bill.

"Not one," replied Breene. "It was as clean as if it had been swept with a vacuum cleaner."

"I'll be darned if I know then," said Bill.

"I have an idea," replied Breene. "I have heard of camel hide and sheep hide water bags. We will try a flying coat water bag."

"It might work, but I doubt it," said Bill.

Breene took off his leather flying coat and tied the ends of the sleeves together. He then held it under the spout of the pump so that the coat proper formed a receptacle which might hold water. It was a ticklish job to fill it with water, and a much more intricate problem to carry the improvised water bag back to the plane. When they reached the plane they had another difficult proposition to face. The two men had carried the water from the shack to the plane and found it not so hard as they had expected, but now one of them must turn

loose of his end and climb up on the plane so that the radiator could be filled.

They maneuvered and shifted positions several times, and finally were satisfied that they had a method which would work. Bill was finally holding the coat while Breene climbed up on the nose of the plane. Bill then lifted the coat up for Breene to take. Something slipped and water streamed down, drenching Bill. They did not lose it all, but over half of it was lost.

Once again they returned to the old well and filled the leather coat and again endeavored to pour it in the radiator filling cap without losing any. This time they did not spill as much as in the first attempt. However, the coat was soaked, and the water seeped through after the second trip.

"We will take my coat this time," said Bill. "Spread yours out to dry. It looks as if we will have to alternate with the coats. One can be drying while we use the other."

They had landed on the old lake bed between seven and seven-thirty. It was nearly noon by the time they had the radiator filled with water. They were both soaked to the skin with spilled water and perspiration. It had been a hard, trying job, but at last it was finished.

"We can't use these coats now to fly in," said Bill. "I don't know just what we will wear. In

order to clear the mountains we will have to climb to seven or eight thousand feet, and it will be cold up there."

"I am so hot now that it will feel good to get cold," replied Breene. "I think that I will just put on these overalls and call it a day."

"As a matter of fact, I don't see that there is anything else that we can do," said Bill. "Throw the coats in the compartment with the baggage, and we will try and start the old crate."

When they had stored the tool kit and coats away they tried to start the engine, but found it difficult, as it had evidently decided to be cranky. Bill set the throttle and spark and helped Breene pull the "prop" through. They couldn't get a discharge from the engine. Finally the cylinders were loaded with gas, the carbureter was flooded, and they had to start all over again.

Bill cut off the gasoline and they backed the propeller up. Then they pulled the "prop" through again. The engine started with a roar. Bill dashed around the wing to turn on the gas before the engine stopped. He reached the cockpit just in time. The engine had started to spit and sputter when he turned on the gas.

They adjusted their helmets and goggles and were ready to start. Breene climbed into his seat, Bill opened the throttle, and they were off. With good

luck they would reach San Francisco by dark. They would still have an entire day before they must report their arrival.

Bill decided that he would follow the railroad to San Bernardino and then cut across the Mojave Desert. He did not want to have any more forced landings so far from civilization. Climbing slowly as he flew along, the plane had attained an altitude of five thousand feet when they reached the entrance to the Cajon Pass. Ahead of them was the Pass proper, and beyond it the San Bernardino Pass. As they went through the Cajon Pass the wind became frightfully gusty. The plane was thrown around so that flying was most uncomfortable.

They passed over Redlands and San Bernardino, and could see ahead of them a high, fast moving cloud of sand. It extended as far as they could see across their horizon. Bill had heard of Santa Annas, and had flown through the edge of one as it passed out into the Pacific, but this was the first time that he had ever been caught in a position where he must fly through that terrifying desert storm to reach his destination.

He might be able to get above it and thus pass the area and reach the San Joaquin Valley. The Santa Annas never extended that far North. It was a case of trying to get through or of turning

back and landing. Bill decided to take a chance, and try and climb over it. Time was short, and he wanted to put as much distance behind him as he could. The Santa Annas usually lasted for three or four days. He did not know whether this was the first day or the last. It was clearly up to him to force his way through.

CHAPTER VII

DOWNED BY THE SANTA ANNA

A Santa Anna is a terrifying thing to encounter. These desert storms blow up out of the desert with an ever-increasing wind velocity. The sand carried by the wind darkens the sky, similar to falling snow. The force of the wind is such that the small particles of sand cut like steel. Automobilists who are caught in these storms are forced to stop where they are until the wind moderates. When they get out of the path of the Santa Anna they usually find that where they formerly may have had a beautifully painted car, one side of the car is now entirely without paint. The metal on the windward side of the car has been polished as brightly as if it had been burnished.

These storms usually extend from the Death Valley region in the Northeast across the Mojave Desert and then either take one or the other, or perhaps both of the Western exits from the desert. Sometimes they confine their motion to the Northern exit through Antelope Valley, down through the San Fer-

nando Valley to the Pacific. Others rush through the San Bernardino Pass and across the Riverside Valley to the Pacific. An unusually large Santa Anna will drive itself through both exits.

Having once passed through the Sierra Madre Mountains, the storm moves along at its tremendous speed until it reaches the ocean. The distance that it extends into the ocean before dissipating is dependent upon the pent-up energy in the storm. Some of them die out by the time they reach the coast, while others are still visible and uncomfortably present thirty or more miles out at sea.

The wind velocity in these storms may be anywhere from fifty to eighty miles an hour. The air currents are bubbling through the storm area like the water in a whirlpool. The sand is carried up to altitudes from seven to nine thousand feet. These storms are usually limited on the Northern side by the Tehachapi Mountains, and move in a Southwesterly direction. Thus an aviator crossing above or through one of these desert sand storms must fly through about seventy miles of bubbling, twisting, writhing air to reach the smooth flying on the other side.

Bill Bruce did not know the full extent of the trouble which he was about to encounter, or probably he would have turned back and landed. Once having committed himself to going through there

was no turning back. As soon as he brought his ship into the real storm area all his efforts were needed to keep his plane under control.

Bill Bruce had flown into the storm at about six thousand feet. The sand in the air was hardly perceptible at first, but, as he progressed, it increased in quantity to such a degree that he was forced to keep his head in the cockpit. The air was so heavily laden with small particles of sand that the inner lining of his nose and throat were actually cut when he breathed. The larger particles cut his face. Breene lowered his head in his cockpit and covered himself with one of the wet flying coats.

The air became more turbulent than ever. The plane was thrown around like a cork in a storm at sea. First one wing would drop and then the other. Bill no sooner leveled the plane out from one gust when another hit the airplane. It was a constant fight to retain any control whatsoever over the ship.

He tried to climb the plane to get above the storm, but found that it required all of his efforts to keep it on an even keel. He could not see in any direction on account of the dust and sand in the air. It was exactly like flying through the clouds or a fog, only a hundred times as rough.

Minutes passed like hours. Bill had no idea how far he had traveled since entering the area. His compass was spinning like a top, so that he was not

sure that he was on his course, and had no means of checking. There were no distinctive topographical features in the desert for checking under normal conditions. All directions were controlled by the mountains to the North and South of the desert, and now these were concealed by dust and sand.

Once the plane rose like a balloon. Bill pointed the nose down and still the plane was carried up. Finally he had his engine wide open and the nose down. His air speed indicator showed a speed of over 150 miles an hour, yet the plane continued to rise. He had jumped from seven to eight thousand feet in a few seconds.

Just as suddenly, the upward motion stopped and the plane twisted and turned at that altitude. He slightly closed the throttle and once again tried to make some headway in the direction toward which he thought his course lay. He finally reached an altitude of nine thousand feet and began to think that he might be able to get above the storm. Suddenly a regular inferno broke loose.

Before he had time to even think of the proper thing to do the plane was dropping toward the earth. Bill opened his engine wide and pulled back on the stick, but it was no use. Down the plane dropped like a plummet. He could not tell how far above the ground he was. His altimeter needle was moving with startling persistency. Down, down it went.

It seemed as if the plane dropped a thousand feet while Bill was bringing the plane back to an even keel after the bump.

There was nothing to do but wait for what was to happen. He could not get out of the storm. He had tried to drive through it and had endeavored to climb over it, but to no avail. Now his fate and that of his mechanic were in the laps of the gods. If they were kind to him he could get the plane out before it hit the ground. If not, then a terrible crash would result.

At times it seemed as if the plane would be literally torn to pieces by the violent gusts of wind. The plane was thrown about, twisted, turned and jolted until Bill was sometimes in doubt which direction was up. He marveled that the wings had not been torn off. In the meantime, they were continuously losing altitude.

The altimeter showed six thousand feet. They had dropped three thousand feet in less time than it takes to tell. Just what the altitude of the floor of the desert was, Bill did not know. It was somewhat higher than their airdrome at Calexico, but how much? If he could only get a glimpse of the ground. He realized that he would have to land the plane. He also realized that it would be a case of landing as soon as he saw the ground. If he was above a clump of trees, then his landing would be made in

the trees. Houses, hills, a railroad line, or anything else would have to be used. He could not fight this storm any longer. Neither the plane nor he had strength to continue the struggle.

The altimeter now showed that they were below five thousand feet. If there would only be a break in the storm. The air was still so filled with dust and sand that he could barely see the wing tips. He must watch for the ground, yet when he looked over the sides of the fusilage his face was cut just as if someone had rubbed sand paper over it. He began to doubt if he could get the plane down without a complete crash.

A few more seconds and it would be over, one way or the other. In the meantime, the plane was down to the two thousand foot level. The dropping evidently had stopped. They were again riding along on rough air, but were maintaining their altitude. It was hard flying, but nothing like what they had been through. Bill knew that he could not get through the Tehachapi Pass at an altitude of less than five thousand feet. He also was sure that he could not climb to that altitude against that terrific down current. There was nothing for him to do but to land the plane.

Bill wondered how much gasoline he had left. He looked at his clock and saw that they had been in the air only two hours and forty-five minutes. He

had gasoline enough for at least another hour. There was no danger of running short if he could find a suitable place to land soon.

Feeling his way downward through the sand and bumpy air he saw some buildings ahead. Just a glimpse and then they disappeared from view. He had seen enough to know that some town or village was below them. What town it was he had no idea. Another break in the dust cloud and he saw a railroad. He must land somewhere near that town and railroad.

Bill made a wide circle and dropped lower. For a while he could not find any indications of the town. All he could see was the wind sweeping the sand across the open desert spaces. Then he saw an open space ahead of him with a building at the far end. He was headed into the wind, and decided that he would land in that place.

Slightly throttling his engine Bill headed his plane down toward that open space. The wind threw the plane around, but Bill managed to keep it fairly level as they dropped lower. He could now see the ground through the dust cloud. The wind was so strong that the plane was barely making any headway. Lower and lower he dropped the plane until the wheels were skimming across the desert weeds. Every once in a while a gust would catch the plane and throw it into the air. Then Bill would have to

act with lightning speed to keep one wing or the other from hooking into the ground.

The ground speed of the plane was about zero when they saw the building but a few yards ahead. Bill kept his throttle open just wide enough to keep the plane under control and headed toward that building. They were moving along just about as fast as a man could walk. Suddenly they came into the lee of the building. The tail of the plane dropped, the wheels ran along the ground, and the plane seemed to gather up speed.

Bill was afraid that they were going to crash into the building, so he closed his throttle and cut his switches. The plane continued to roll toward the structure. He tried to make up his mind whether it would be better to ground loop or hit it head on. Which would cause the least damage to the plane? He decided that there was a chance of no damage at all being done if he hit the frame work head on. These thoughts took but a fraction of a second.

Almost immediately the plane slowed down perceptibly. They had reached some soft ground. Then a slight jar as the propeller hub crashed into the frame sides of the large barn. They were safely down on the ground.

"Well, Lieutenant, that was some storm," exclaimed Breene, as he stood up in the rear cockpit. "For a while I was in doubt as to where I would

have the pleasure of talking to you next. I was not sure that it would be in this world."

"Let's see what damage was done," said Bill, as he climbed out of the plane. "I am here to state that I will never fly through another of those storms voluntarily."

A close examination of the plane did not reveal any damage at all. Their plane was in good condition, but they were stranded somewhere in the Mojave. They did not know where, but were thankful to be down safely. If they reached San Francisco in time to start in the race now, it would be by the skin of their teeth.

CHAPTER VIII

BLOCKED BY FOG

"Well, our ship is O.K. and we are safe on the ground, but I wonder just what particular part of the Mojave Desert we have picked for a landing field," said Bill.

"You can search me," said Breene. "I haven't seen anything of the ground since we hit the edge of that sand storm. We were flying long enough to get to some better place than this. For all we know there may be a real town within a hundred yards of us. We couldn't see it through this dust even if it did happen to be there."

"Let's anchor the plane, cover the cockpits and try to get into town," said Bill. "We can't stay here in back of this barn indefinitely."

Breene went back to the rear cockpit and threw out the canvas covers for the engine and cockpits and the tie-down stakes. In a few moments they had the engine covered so that some of the sand and dirt would be kept out of it. Then they drove stakes into the ground under each wing tip. The wing skids were

then tied to the stakes. In the same way the stabilizer braces were fastened to stakes to keep the tail of the plane from being thrown into the air by a sudden gust of wind. Bill secured the stick in his cockpit to eliminate any movements of the control surfaces and with the aid of Breene, covered both cockpits with a canvas cover.

"Now, let's find out the direction of the town," said Bill.

"Which way are you going to start," asked Breene. "As far as I can see, there will be no difference. We can't see more than a hundred feet in any direction."

"There must be a house near this barn," said Bill. "For all we know, it may be right close on the other side. Let's go."

They walked to the end of the barn, and were greeted with a gale of flying sand and dust. It filled their eyes, cut their faces, and choked them by getting into their nostrils and down their throats. They bent forward and walked straight into the wind. When they were around the end of the barn the wind did not seem to be so strong, but it kept them from walking in an erect position.

A few yards ahead of them Bill could see the outlines of a house, and they made for it. They reached the building without even knowing what it looked like. Once again they were out of the full force of the wind in the lee of the house. The house

was not half as imposing looking as the barn had been. Bill stepped up onto the porch and knocked at the door.

"Well, where did you come from?" asked the man who opened the door.

"Just landed in an airplane in back of your barn," replied Bill.

The man looked incredulous. It was too much for him. He was sure that no one could have flown through such a storm. No airplane could have withstood the terrific pressure and tremendous strains imposed upon it in such a high and gusty wind. Bill saw the look of doubt on the man's face.

"I don't mind in the least your doubting my statement, but if you want to verify it go over there behind your barn, and you will find the airplane," he said.

"I'll take your word for it. My name's Parker. Come in out of the wind."

"Just what part of the world is this," asked Bill, when they were seated inside the house.

"Mojave is but a short distance over there," said Parker. "Ordinarily I can see it from this window, but I haven't been able to get a look at it today. This is some storm. How did you ever get down without cracking up?"

"That will be a mystery to me from now on,"

replied Breene. "I never thought that we would make it."

"Why didn't you stop before you ran into the Santa Anna?" asked Parker.

Bill then told the story of the airplane race, and of his belated start.

"I simply had to make time and get as much distance behind me as I could," he concluded. "When will this storm blow over?"

"You can never tell," replied Parker. "It may blow itself out tonight, or we may have the same thing tomorrow. The day after will be clear anyway. These storms never last more than three days. This is the second day for this one. It started yesterday, but wasn't blowing so hard."

"We had better go on into town and find a place to sleep," said Bill.

"You can stay right here if you care to," said Parker. "I am here all by myself. My family have gone to Los Angeles. I have plenty of beds and lots to eat."

"That will suit me fine if it is not too much trouble," replied Bill. "I will have to get some gasoline before we can start for San Francisco."

"We will telephone for that," said Parker. "They will deliver it whenever you want it."

"First thing tomorrow morning will be all right for it," said Bill.

Bill telephoned for the gasoline, and then they sat around until supper time telling stories. They found that Parker had spent considerable time prospecting in Death Valley. Before he had started working on his homestead in the Mojave he had spent several months each year in Death Valley.

"Never had much luck there, though," said Parker. "When I was lucky enough to get in right after a heavy rain sometimes I would find a pocket of gold at the base of the mountains. That would keep me for another year, but I never did locate the mother lode. That's the way that most prospectors worked the valley. Went in during the Spring after the Winter rains were over. It rains very little there, but when it does, boy, it rains."

"It must have been terribly hard traveling, wasn't it?" asked Bill.

"Not so bad," replied Parker. "I had several pack burros. They carried all my plunder and some water. That was the hardest part,—water. There is not a drop of fresh water in the valley. Gets hot there, too. Every once in a while one of the old prospectors goes in and never comes out. If your burros get away from you while you are there you are out of luck."

"There's nothing there but sand, is there?" asked Bill.

"Mountains, sand and borax," replied Parker. "Panamint Range on the West is from seven to eight thousand feet high. Amargosa Range on the East runs from seven to ten thousand feet. Death Valley in between is below sea level. Every once in a while I used to run across part of a wagon, some kitchen utensils, bones of an ox or man; all that was left of some outfit trying to make it across into California during the gold rush many years ago. A good many people lost their lives trying to get through back in those days."

The strong Northwest wind with its sand and dust was still blowing when they went to bed that night. Bill had grave doubts as to their getting away the next day. He must get to San Francisco before dark the next day, for the race started on the following morning at daybreak.

"Come on, Lieutenant, get up," said Breene the next morning. "We must get going."

"Where's the Santa Anna?" asked Bill.

"Not a sign of it," replied Breene. "Parker has been up for an hour getting our breakfast. It's a fine day."

After eating their breakfast Bill, Breene and Parker went out to the plane. It was still quite early, too early, they thought, for the gasoline truck, so they uncovered the engine and cockpits and took out the stakes. After finishing this task they turned

the plane so that it headed down the field away from the barn. The sky was entirely free from the sand and dust of the preceding day. A short distance away they could see the buildings of Mojave. The town was only a very short distance from them.

An hour passed, but the gas truck did not arrive, and Bill began to feel worried. He hesitated about asking Parker concerning it. There was always the chance that the truck was on its way out to the field. It was Breene who finally started action.

"Lieutenant," he said, "I think that I had better put in another call for gasoline. We haven't any too much time left, judging from the amount we have taken to get this far."

"I think that you had better call them up," said Bill. "I want to get started as soon as possible."

"I'll go with you," said Parker. "I may be able to help out."

Bill threw himself down under the wing of the plane and looked across the desert. To the North he could see the mountains towering above the level plain. This range was the marking line between the Mojave and the San Joaquin Valley. Once over those mountains he should have no trouble in getting through.

The mountain ranges from the North and South came together in the West, forming Antelope Val-

ley. The old timers living in the region always held that it was this narrow valley between the high mountains that caused the Santa Annas. Normally the peaks were covered with snow. The floor of the desert was usually quite hot. Thus there was quite a great difference in temperature between the ground and the upper air. Antelope Valley acted like a regular chimney for the hot air rushing from the desert.

"They are starting out now," said Breene, when he returned. "Had some trouble with their truck."

It was almost eight o'clock when the truck finally arrived. They had no pump for transferring the gasoline to the plane, and accordingly the gas had to be handled in five gallon lots. That made it a tedious task. Sixty gallons of gasoline, twelve times they had to fill and empty the can. Then the oil had to be put in. That took time, so it was almost ten-thirty by the time they had finished. Bill and Breene went back to the house and washed up.

It was eleven o'clock when Bill called out, "Off, on and up," and Breene and Parker pulled the propeller through. The engine started, and they were all set to continue their journey.

"You'd better stay away from Death Valley," called Bill, as he waved good-bye to Parker.

"I'll never go back again," replied Parker. "I'm married now. Good luck to you."

A few minutes later Bill was climbing the plane over the Tehachapi Pass. The railroad wound around beneath them as it gained altitude to get across. Beyond the pass lay the San Joaquin Valley. The Sierra Nevada Mountains rose up out of the eastern edge of the valley. Far off to the right of the plane Bill could see the snow cap of Mt. Whitney, the highest point in the United States, towering above the other mountains of the range. Here was another of those strange geological formations, the highest point Mt. Whitney, and the lowest point Death Valley, within a short distance of each other. Both were in one state, California.

Soon they passed over Bakersfield and its numerous oil fields. The oil derricks rose from the floor of the valley like small forests. Large tanks could be seen nearby where the oil was stored until it could be transferred to other storage places.

The valley stretched out indefinitely ahead of them. As far as the eye could reach, there was nothing but the level ground extending to the North. The valley was about ninety miles wide and bounded on both sides by mountains. Bill dropped down as he traveled North. One small town after another passed beneath them.

Here and there they passed over green areas where irrigation projects had been completed and the settlers had crops growing. Once on the trip

Bill was in a quandary. His map showed Tulare Lake as being a large body of water. It should have been directly on his course, but when he arrived at a point where he should have seen it, there was no water in sight. He thought that he must be off his course. A closer inspection of the ground beneath showed that the lake had been drained and high dikes built up to keep the water out. The lake bottom was being cultivated as wheat land.

Shortly after passing the Coalinga oil field Bill headed the plane over the coast range toward the Santa Clara Valley. This area was much more thickly inhabited than the other country over which he had flown. It was checkerboarded with fruit orchards. Railroads and roads characterized it as being a prosperous section. Then, ahead of them, appeared San Francisco Bay.

After passing over San Jose they reached the bay. They saw the salt works near Redwood City, and dropped down lower over the water. Within a few minutes they ran into the edge of a large fog bank. Bill dropped down lower to get under it and was soon flying along with his wheels just a few feet above the water. The fog cut off his view from everything but the inner portions of the plane.

Bill had never before flown across San Francisco Bay. He knew that there were some islands in the bay; that the shore line was very irregular; that it

was surrounded by hills on all sides, and that there was a constant stream of ships plying back and forth. All of these things presented obstacles which he might hit in the fog. Should he continue his flight or turn back?

CHAPTER IX

SAN FRANCISCO AT LAST

It seemed to Bill Bruce, as he flew under the edge of the fog bank, that all the powers of nature were conspiring against him in their efforts to prevent his arriving at San Francisco in time to start in the race. After his experiences with Andre, it was but natural that Andre should do everything possible to damage Bill's airplane. That, however, was done with an entirely different object in mind. Andre had a personal grudge against Bill. The only way that the grudge could be squared was to cripple or kill Bill, and Andre was doing his best along those lines. Fortunately, he had not been successful thus far.

Bill did not expect that the elements would be against him all the time during the trip North. So far he had not been able to complete one day's flying without running into abnormal weather conditions. The Santa Anna was the first unexpected set-back. These storms are not ordinarily encountered over the desert. There are perhaps one or two of them

a month during certain seasons of the year. Bill had been unfortunate enough to be flying during one of those periods.

The fogs around San Francisco Bay are to be expected every day during some months. The worst fog conditions are to be found during the Summer months. Usually they are infrequent during the Fall. Thus Bill met the unusual weather conditions in California. There really should not be any fog in October, yet he was in one.

Bill had about thirty miles to go when he went under the fog. If the mist did not drop right down onto the water he could probably get through to the landing field near the Golden Gate. There was always the chance of the fog settling on the water, then flying became a matter of luck rather than navigation. Pilots cannot see the numerous ferry boats plying across the bay through a dense fog. Neither can they hear their whistles. Surface craft have that much advantage over aircraft. Then again, an airplane traveling at a speed of about one hundred miles an hour, cannot be turned to prevent colliding with an obstacle which suddenly makes its appearance through the mist with the same degree of success that a slower moving object can.

Bill could barely see the wing tips of his plane when he entered the fog. That meant that his vision was limited to about thirty or forty feet at the most.

Traveling at a rate of 100 miles an hour the plane covered about 145 feet in a second. Thus there would be less than a half second between the time that Bill saw an obstacle loom out of the fog and the time in which the plane was on it. A half second is a very short time to maneuver an airplane weighing three thousand pounds. That was the situation confronting Bill Bruce.

In order to start in the race the next day Bill Bruce would have to report in during the afternoon. His plane must be inspected and serviced. There was also the probability that some minor repairs would have to be made. All this would take time. The race was to start at daylight. It would be too late to report in the morning. There was but one thing to do, and that was to fly under, through or over the fog and take chances on getting through.

Bill was finding it rather hard to navigate so close to the water. The fog seemed to have occasional large clouds which floated along on the water's surface. Thus it was difficult to see more than a hundred feet or so ahead at any time. When one of these low hanging clouds of mist was met he had practically no visibility at all until after it had been passed.

The air between the fog and the water was very cool in contrast to the air that he had been flying through. At first Bill did not appreciate this, but

when his engine started missing Bill looked to see if he could find the reason. He was flying about ten feet above the water and was a good half mile from shore. A missing engine, unless it stopped, meant but one thing, and that was a landing in the water.

Bill looked at the water temperature gauge while looking over the instruments. It registered fifty degrees. No wonder the engine was missing. Bill closed the shutters on the radiator. The engine still continued to miss, and it looked for a time as if they would have to swim for it after landing in the bay. Finally, however, the closed shutters had the desired effect, and the engine warmed up.

Just how far they had flown up the bay Bill did not know, but suddenly a large steamer appeared out of the fog directly in front of the plane. It was too close to fly around, and Bill had no choice but to zoom over it. He did not know how high the masts were, nor if there was a radio antennae stretching between the masts. His only chance was to get over the ship. He pulled back on the stick.

The airplane approached the ship with terrific speed. As he came closer Bill could see the tremendous size of the ship. It looked as if it were as large as a mountain. The airplane was climbing rapidly, but the ship was getting closer just as rapidly. Bill saw the deck of the ship pass under the plane and

then he entered the fog. He did not know whether he had enough altitude to clear the masts or not, so he kept his stick back. All the time he expected to feel the plane collide with some of the brace ropes or a mast.

After a while he was sure that he was past the ship. He could not see anything, so he gently nosed the plane downward. He felt the plane down as best he could, for he did not want to crash into the water without seeing it. It is always extremely difficult to determine the exact height of an airplane above smooth water, and fog makes it doubly difficult. Bill brought the plane down out of the fog and again flew along just skimming the water.

A schooner at anchor appeared a short distance to the right. Bill had a fleeting glimpse as he passed. He then passed a ferry boat, and realized, when he had to look up to see the top deck, just how low he was flying. One thing was certain, if he was now passing ferry boats, he was getting close to the city. He must edge closer to the shore so he could make the turn toward the Golden Gate at the proper time. Otherwise he would miss his directions and end up in the Northern part of the Bay around San Quentin.

Bill turned his plane slightly toward the city. He missed two ferry boats in quick succession. All at once he saw the lights on the ferry slips. He was

close enough to find his way and turned to follow the shore line. This was quite easy for a while, but soon he encountered another of those low hanging wisps of fog and lost the shore line. Once again he felt his way toward the docks. This time he was not so successful as the first time.

Ahead of him loomed a large pier with two steamers docked. He could not climb over them. He must turn. He banked his plane and had the unpleasant sensation of one wing skid cutting through the water. The extra drag on the wing skid threatened to throw the plane into the water. He was in a precarious position. He must turn to get away from that pier, and he must raise his wing to keep from crashing into the water. Everything finally came out all right when he levelled off the plane and flew alongside the hull of the near steamer. It was a close call, but he made it by inches. It looked as if his wing was scraping the paint from the hull of that steamer. The fog lifted a little as he rounded the stern of the boat. He could see the line of docks turn toward the West. Bill rounded the turn and headed toward the Golden Gate.

He saw ahead of him a break in the line of piers. Then, farther along, the Army Transport docks came into view for an instant and were as quickly lost with another low hanging cloud of fog. This time the fog was on the water. He dared not try

and fly under it for fear of hitting the water. He flew through it blindly, hoping to run into clear air ahead.

The fog lifted and he saw some buildings along the shore line. They marked his last land mark before reaching the airdrome. He knew that there was a high flag pole between him and the landing field. Just where it was located he did not know and could not see. He stayed out over the water to be sure and miss it. The fog dropped again and he edged the plane into the shore.

Ahead of him the fog was again on the water. If he continued his present direction of flight he might fly out the Golden Gate into the Pacific without ever seeing the airdrome. Bill decided that he must be abreast of the airdrome. He must land now or climb through the fog and try it again. The next trip might be even harder. Bill pulled higher up into the fog and turned toward the shore.

He throttled his engine and tried to feel his way to the ground. He had the impression of a telephone line passing beneath him. He let the plane sink to the ground. The wheels hit and the plane rolled along in the fog. Finally all motion ceased. The plane was completely surrounded by fog.

"I hope this is the place," said Bill to Breene.

"You don't hope it half as much as I do, Lieutenant," replied Breene.

"We will just stay right here until the fog raises," said Bill.

In a few moments the fog raised and Bill could see that he had landed on the aviation field. His plane had stopped just a few yards from the line of planes which were to start in the race the next day. Bill taxied toward the end of the line and was met by some mechanics. They turned the plane so that it headed in the same direction as the others and Bill climbed out.

"Fill me up with gas and oil so that I can get started with the others tomorrow morning," said Bill to the mechanics. "Breene, you look over the engine and see that everything is O. K. I am going to report my arrival."

"What do you know about that," asked one of the mechanics. "He comes in here with no visibility at all, and acts as if it was a sunny Summer day. Didn't you get any kick at all in coming in through that fog, Lieutenant?"

"I haven't time to think about that now," replied Bill. "I must get ready for the race tomorrow."

Bill walked to the field office in the hangar and met Major Spots, the officer in charge of the race.

"Well, here I am, Major," said Bill. "I am all ready to start in the race."

"Did you just land in that fog?" asked Major Spots.

"Either through it, under it or around it," replied Bill. "I sometimes thought I would have to land in the bay on account of it."

"I am glad to see that you got here," said Spots. "Don't ever pull any more of that fog flying around where I am, though, or I will have to put you on the ground for poor flying judgment."

"Major, if I did not get here this afternoon, I could not have entered the race. My orders said to get here and participate," replied Bill. "Here I am."

"Come into the office and I will give you a copy of the rules of the race," said Spots. "Steele and Finch were not sure that you would get here. They told me that your old enemy Andre had again made his appearance. I hope that he is not going to hound you for the rest of your career."

"He will be caught sooner or later," replied Bill. "They can't make it too soon to please me, either."

"Here are the rules of the race," said Spots, when they had entered his office. "The race starts at daybreak tomorrow. You had better read the rules over and get acquainted with the details so that you will not run afoul of the judges along the way. Be sure and get here on time. The planes will start at times given them. The times have already been determined by drawing slips from a hat. Your number is 61. Have it painted on both sides of your fusilage and on the under side of your lower wing."

CHAPTER X

A BUSY NIGHT

The other contestants in the race had arrived at San Francisco the day before or even before that. They had had time to become acquainted with the rules and to get their planes in condition. Bill Bruce and Sergeant Breene had but a scant fourteen hours to get ready. In this time Bill must first become acquainted with the rules and then see that his plane conformed in every respect. Accordingly he retired to a quiet spot and studied the mimeograph which Major Spots had given him.

As he read the pamphlet the reason for the race and the manner in which it was being conducted became apparent. The race was to be a round-trip trans-continental flight between New York and San Francisco in which pilots were allowed to start from either end. The distance to be covered one way was 2701 miles. Thus the winner of the race would have covered 5400 miles when he finished.

The race was to be in the nature of a test to de-

termine the serviceability of the equipment with which the squadrons were equipped, to foster the installation of more landing fields on the trans-continental air-way, to determine the flying and navigating ability of pilots, to decide upon the feasibility of securing concentrations of air units on one coast or the other by flying in case of necessity and to awaken an interest throughout the United States in aviation.

Service planes of all types were entered in the race, but each entry had to be flown as used in the organizations. Machine guns, radio, bomb racks and other articles of equipment could be removed, but the inherent parts of the plane could not be changed. Thus a comparison of the different planes and their accessories with regard to their serviceability could be secured.

To get a further test on the planes and their parts it was required that all entries land and spend not less than thirty minutes at each of twenty-one landing fields across the continent. All contestants were required to check in at the different control points to be cleared for the next stop, and also to have the time of arrival and departure entered in their log book.

In order that there would be no more risk to the aviators the officer in charge of each control could hold up all pilots if weather conditions were danger-

ous at his or the next control. Further, no flying would be permitted after sunset.

All time between controls would be considered as flying time, regardless of where the plane was. Any plane damaged so that it could not be repaired in forty-eight hours would be eliminated from the race. All pilots must be examined to determine their physical condition before starting. All planes must leave each control with its tanks full of oil and gasoline.

Bill at once secured a map and studied the route. The elevations of the different landing fields varied from fifteen feet above sea level at San Francisco to 6,600 feet at Rawlins, Wyoming—the lowest and highest points along the route. Every type of country in the United States would be flown over. The Sacramento Valley, the Sierra Nevada Mountains, the Rockies, the endless plains of the Middle-West, the fertile valley of the Mississippi, the low lands along the Great Lakes and the Appalachian Mountains would be passed over, each in its turn.

The race was open to officers of the Army, Navy and Marine Corps. There were forty-nine starters from the East Coast and twenty from the West Coast. The planes to be used included the service planes used by the United States in the World War and, in addition, the French Spad, the Italian SVA, the English SE5 and the German Fokker. It was

an endurance test of all the best planes built in the world. It was a race in which the most skillful pilots of the United States were competing. Bill realized that he had a hard task ahead of him to make a creditable showing against that field.

Bill looked over the list of entries and made a mental note of the speed of their planes, his DH4 about 124 miles an hour, the Spad 122, the SE5 122, the Fokker 120 and the SVA about 140. There was no doubt that the SVA had an edge on the others in so far as speed alone was considered, but there was that element of doubt connected with all entries—could the engine stand up under the grind of flying at full speed across the continent and back again?

Bill decided that the one sure way of being among the leaders in the race was to run his engine below its maximum speed and thus have a reasonable chance of finishing without having to change his engine. The other pilots might finish the first half of the race ahead of him, but he would be certain of finishing without having any serious engine trouble.

It was almost time for supper when he finished reading and digesting the instructions. Bill hurried out to the planes. It was getting quite dark, but he found Breene and a couple of other mechanics working on his plane.

"We are almost through, Lieutenant," said Breene as Bill came up.

"How much more have you to do?" asked Bill.

"Just check the distributor heads, clean the spark plugs, drain the carburetor, fill the tanks with gas and oil—that's all," replied Breene.

"It looks to me as if you have enough for several hours work," commented Bill.

"We will get through by ten o'clock easily," said Breene.

"I will get busy and get my maps together, take my physical examination, and make a study of the course that we must fly," said Bill. "Has the plane been inspected to see if it complies with the rules?"

"Inspected and passed," answered Breene. "We even have the number painted on the wings and fusilage. See the big 61?"

"Have everything ready to start at daybreak," said Bill. "I don't know the time of starting that we have been given, but we must be here to start when our time comes. Get here early."

Bill then returned to the office and hunted up the flight surgeon.

"Is your name Bill Bruce?" asked a large heavy man, as Bill entered the dispensary.

"I am he," replied Bill.

"I have been waiting for you all day. I am the flight surgeon. My name's Andy Smith."

"I haven't been here very long," replied Bill.

"You can't get away with that stuff with me," replied Smith. "I saw you come sneaking through the fog about two hours ago. Come on and get your examination, I want to get away from here."

Bill Bruce then went through a series of eye tests, ear examinations, check of nervous reactions, and a general examination as to his physical condition.

"You've had a hard day," said Smith, when he had finished. "I can see that by your physical condition. You had better get some food and then go to bed. You have a hard grind ahead of you. Rest up while you can. With those qualifications I pass you for the race."

"I am tired enough to do all that right now," said Bill. "As soon as I get my maps I will be ready to find a place to bunk."

"Hurry and get them and I will take you down town with me," said Smith. "There's no place to sleep here. The buildings haven't been completed here as yet. The construction has just started."

Bill found Captain Andy Smith, the Flight Surgeon waiting for him when he had secured the maps and his hand bags. They jumped into Smith's auto and started toward town.

"This is some fog," said Smith. "We won't break any speed laws getting down town tonight."

"How long does this fog usually last?" asked Bill.

"You can never tell," replied the Flight Surgeon. "It may clear up in a few minutes or it may be this way tomorrow morning. If the fog hasn't lifted when the race starts tomorrow some of these birds are going to find it rather hard getting through to Sacramento."

"The race won't start if the fog is this bad, will it?" asked Bill.

"Why not? The entries in New York don't know that there is a fog in San Francisco. They'll start."

Bill didn't relish any more fog flying after his experiences that day. He hoped that the morning would be bright and clear, but there was not much hope for better weather just then. The fog was right down on the streets. Driving the automobile was almost as hazardous as flying a plane. The streets were wet, other automobiles and street cars were moving in all directions. It was marvelous to Bill that they made such good time.

Bill was astonished at the steep hills in the city. Evidently no attempt had been made to level the streets. They went over grades under almost impossible driving conditions. Captain Andy Smith did not seem to even notice the hills. It was evident that this was one of the things that a newcomer must

become accustomed to in San Francisco. Finally they stopped before a hotel.

"This is where I am stopping," said Captain Smith. "You can stop here if you want to and I will take you out in the morning."

It was late in the night before Bill Bruce was satisfied that he had become sufficiently acquainted with his route across the United States to call it a day. He was too tired to do anything more. He put the maps away and went to bed.

The next morning he was awakened by the telephone ringing.

"Time to get up for breakfast," said Captain Andy Smith over the phone.

It was still dark. Bill was tired. He had not had enough sleep, but he must get to the aviation field in time to start when his number was called. He dressed hurriedly and went down for breakfast. Andy Smith met him in the lobby.

"We will pick up something to eat on the way out," said Captain Smith.

In three quarters of an hour they were out at the aviation field. Mechanics were running around, engines were being tested, pilots were getting last minute instructions and giving advice to friends as to how to fly the route, but the one thing that impressed Bill above everything else was that the fog was still there. It was higher, not down on the water's

surface, but it was there twenty or thirty feet above the ground.

"Hello, Bill," said someone nearby.

Bill looked around and saw Lieutenant Steele, and his old friend, Bob Finch coming toward him.

"I finally arrived," said Bill.

"You must have had some trip," said Bob Finch. "How was the Mojave? We came through ahead of a Santa Anna. You must have just hit it."

"I did," replied Bill. "I am not sure yet as to how I came through, but here I am."

"Is your plane all right?" asked Steele.

"The plane is all right now, and I hope that it stays that way for several days—long enough for me to get to New York and back again."

"They have drawn for starting time, and you are the last one to take off," said Finch. "We will see you in New York."

"I'll see you before that," said Bill. "The twenty minutes start that you have won't be of much use when I get going."

"I have to get ready to go," said Steele. "Good luck to you."

"Good luck to you both," said Bill. "One of us has to win this race."

"That's the spirit," said Bob Finch. "We must keep it in the squadron. One of the three of us must win."

"The first plane will leave in ten minutes," someone called out to the group of pilots. "The other planes will leave in the order assigned at intervals of one minute. Everybody get ready."

It was just beginning to get light in the East. In ten minutes it would be light enough for the race to start. The 5400 mile race was about to start! Bill had one consolation—the other pilots would have to start through the same foggy air that he must. They would all have that same handicap. The first plane would only have a twenty minute start on his. Twenty planes to pass in twenty-seven hundred miles—one plane every hundred miles if he was to get to New York first!

Bill found Breene at his plane. They stowed away their limited baggage, tested out their engine, and waited in their plane until the first plane took off. The race was on!

CHAPTER XI

THE FIRST CONTROL

It was just getting light enough to see down the landing field when the first airplane took off. The twenty-five planes were lined up on the Eastern end, headed toward the Golden Gate. As Bill looked ahead he could see the sharp cliff which bordered the field on the South, and the waters of the bay on the North. Far down the field was another cliff which made it necessary for the pilots to turn sharply after taking off. Once having turned, the course would be over the waters of the bay until Vallejo was reached. The fog was still rolling in from the ocean through the Golden Gate.

Twenty-five planes lined up ready to start on a race of 5400 miles. All of them must either fly under the fog with a scant fifteen feet between their wheels and the water, or they must climb through the fog and fly by compass for thirty or forty miles until they reached the clear area in the Sacramento Valley. Bill had drawn the last starting time. Bob Finch had been in the first plane that took off. Steele

had drawn number four. All of the planes would be in the air when Bill left the ground. The first plane would be half way to the first control stop.

While Bill was thinking of these things the second plane started down the field with a roar. The men at the starting line could see the plane leave the ground, turn at the far end of the field to miss the steep hill, fly out over the bay and then disappear into the fog. Each pilot must decide for himself how he was going to fly the course. Once having left the ground, he was entirely upon his own resources. There was no one to help him. If he made a good showing he alone would get the credit. If he lost his way, lost time by not following the direct route, had engine trouble, or made a poor landing and broke his plane, he alone was responsible.

Bill watched the different planes start off at one minute intervals. It was hard to sit there and watch the others leave. He was impatient to get away himself. Once in the air, he could pit his skill against that of any of the other pilots. The number of planes on the ground became less and less until there were but two waiting to start. One was a Fokker and the other was Bill's DH. The starter gave the signal for the Fokker to take off. It started down the field, the engine cut out on several cylinders, and the plane stopped rolling. The Fokker turned back toward the starting line.

Some one ran up to Bill and said, "Start when you are ready, Bruce."

Bill acknowledged receipt of his instructions with a smile and turned to see if Sergeant Breene was ready. Breene gave the "go ahead" signal. Bill opened his throttle after the blocks had been removed, and the plane was moving rapidly over the ground.

On account of the Fokker pilot having engine trouble, Bill had gained one position in the race before leaving the first airdrome. It was still a long distance to New York, the half-way point. Bill banked his plane and turned over San Francisco Bay. He decided to fly through the fog and then navigate by compass to Mather Field, Sacramento.

There were advantages and disadvantages in this method of flying. If everything went along smoothly, and he followed the proper compass course he should make some time on the pilots who flew beneath the fog. However, if his compass reading was incorrect, then he would get off his course and would not be able to check to find out until he reached the edge of the fog belt. Then again, if his engine stopped while above the fog he probably would have a bad crash when he made his forced landing. Bill had sufficient confidence in his engine, compass and his own navigating ability to try it, regardless of the risks.

He pulled back on the stick as soon as he had squared away on the proper course. Immediately afterwards the fog enveloped the plane. Bill had to control the plane by his instruments. He could not see the wing struts which were but a few feet from his cockpit. He held his plane at a constant climbing angle and watched the altimeter hand move. It seemed to move so slowly that he thought he must have made a mistake in the climbing angle of the plane. He dared not change it for fear of stalling the plane and dropping into a spin.

Hours seemed to pass, and he was still trying to climb through the fog. How thick was it? He looked at the altimeter again. He had climbed but three hundred feet. The air speed of the plane showed that he was making good time, but why didn't he get more altitude? Then he looked at his clock. It had been but three minutes since he had left the flying field. No wonder he was still in the cloud of mist. Bill decided that there was no use in getting impatient, and sat back in the cockpit holding the controls at a constant angle.

The plane was functioning properly, and there was nothing to worry about. In a short time he could see the mist become much lighter above him. The plane was coming out of the fog. Then suddenly they emerged into the clear air. The fog lay beneath them like a large field of snow. Off to the West Bill

could see the mountain peaks of the coast range thrusting their heads through the mist. Ahead of the plane the fog bank seemed to extend indefinitely.

Bill climbed the plane to a thousand feet and set his course for Mather Field. Far ahead he could see Mt. Diablo with its peak towering far above him. The Berkeley Hills presented an obstacle which made the fog slope upward to reach their tops and then drop down on the other side like a long hill of snow. The top of the fog was so smooth that it looked as if it would be possible to land a plane on it.

As the flight continued the clear ground ahead of the fog bank came into view. Bill had been flying for fifteen minutes when he reached the first clear spot beneath him. He looked down and saw several ships anchored in a narrow waterway. Near by were several others tied to docks. A closer examination revealed that they were warships. Bill was directly over Vallejo, the Navy Yard. He was on his course and making good time, much to his satisfaction.

The Sacramento Valley stretched out in front of the plane. Bill could see the Sacramento River winding its way from the North through the extensive wheat fields. The river looked like a silver ribbon turning and twisting in the sunlight. Off to his right front he saw the point where the Sacramento and

San Joaquin rivers joined and then turned to the West to run into the bay. He looked down at the river as it became more distinct from the plane. A railroad ferry was working its way across with a passenger train aboard. A little farther up stream one of the river boats was moving slowly down the river with its cargo from the valley.

While watching these interesting sights Bill forgot all about the race. He came to with a start and looked at his compass. He had turned from his course. He must do better than this. This was a race, not a sight-seeing expedition. Bill turned back to his course, and from then on, kept his mind on the task ahead of him.

The City of Sacramento loomed up along the river ahead of the plane. Several airplanes were flying along below his plane. Evidently Bill had not lost much time while he had been looking at the scenery, for he had gained on all of those planes. Perhaps it had been because he had flown a direct course above the fog while they had been turning and twisting to miss obstacles below it. Then again, the wind may have been stronger up where he was flying.

Bill dropped the nose of his plane slightly and gained on the plane immediately in front. He wanted to land ahead of that plane. By doing so, he would be cleared for the next control ahead of it. He looked for the airdrome, but could not find it. The

entire country seemed to be covered with fruit orchards and wheat fields. There seemed to be no place for an aviation field.

When Bill was almost directly opposite Sacramento he remembered that the airdrome was located close to the American River. He looked and saw that the American River joined the Sacramento River right at the town itself. He turned his plane slightly and flew toward a point several miles up the American River. The buildings on the airdrome came into view. Bill was abreast of the preceding plane when he turned to make his landing.

The rules of the race provided that the landing time should be taken when the wheels of the plane touched the ground. After that the planes were to circle the field and land into the wind. If Bill turned into the wind to touch his wheels he would lose quite a lot of time. Bill decided to touch his wheels while going down wind.

The plane gathered speed as it dropped toward the field. He saw that the plane which he was trying to catch was another DH, and that it was circling into the wind before touching its wheels. Bill headed straight toward the middle of the field and felt his way down to the ground. His wheels touched while the plane was making a speed of about 140 miles an hour.

Bill pulled his plane into a zoom and turned over

the field operations office to be sure that the officials had checked him in. A quick turn and he was beyond the line of buildings ready to straighten out for his landing. He was too busy now to pay any attention to other planes other than to keep from running into them. He throttled his engine and glided in for a landing. The plane sank to the ground and Bill taxied to the "dead line."

"See that it is serviced, Breene," said Bill, as he jumped from the plane. "It is working all right, so that we do not need to have anything else done. I am going over to check in. We will start in exactly thirty minutes. Have the engine turning over so that we can get away on the dot."

Bill hurried over to the checking station. Other pilots were walking to or away from it. Bill arrived at the desk and turned in his log book for certification. He looked over the chart. He was no longer in twenty-fifth position. He was now twentieth, as he had landed ahead of four other planes and had started ahead of the twenty-fourth plane.

The judge made his entries in Bill's log and told Bill to be sure and get his starting time entered before he departed.

"What time can I leave?" asked Bill.

"The weather report from Reno is O.K.," replied the judge. "If your plane is all right you can leave exactly thirty minutes after you landed. The starter

will enter the time in your log and give you the go ahead."

Bill left the office and returned to his plane. The other four planes had landed. The Fokker was some distance away coming toward the field. The first plane had already been cleared and was disappearing toward the Sierras. Other planes left at irregular intervals. Bill noticed that two planes were having work done on their landing gear. One was a Spad and the other a DH. It was possible that he would get away ahead of these two.

He had but five minutes to wait when another plane returned to the airdrome on account of engine trouble. Then the starter gave the signal for an SE5 to start and the pilot climbed out of the plane. After making some signs, mechanics came up and started working on the engine. Bill had no idea what position he had in the race when the starter came toward him.

"Are you sure that the engine is O.K.?" asked Bill.

"It was when I shut it off," replied Breene.

"Off, on and up," shouted Bill.

A couple of mechanics pulled the "prop" through.

"Contact," called Bill.

Another pull of the propeller and the engine was purring with all the smoothness and regularity of a sewing machine. Breene climbed into his seat and they were ready for the "go ahead."

The starter came up, Bill handed out his log, an entry was made of the starting time and Bill opened the throttle. At first the engine didn't take the increased gas. When it did take it several cylinders cut out. Bill was in a quandary. Should he continue his flight, or should he stop and see if his engine picked up?

There was a chance that the engine had become loaded with gasoline while idling during their wait. If that was the case, it would clear itself and soon function properly. Then again, it might be that the plugs were dirty. They might clean themselves, and then they might not. Bill decided to go ahead and take the risk.

CHAPTER XII

OVER THE SIERRA NEVADA MOUNTAINS

Bill's engine did not sound at all satisfactory. It was spitting, coughing and wheezing as the plane gathered speed. Bill opened and closed his throttle suddenly several times. This cleared the engine and it at once gave forth that steady roar which a pilot loves to hear. A short run after that and the plane was in the air. Bill immediately turned and started climbing to cross the Sierras.

The first leg of the trip had been about eighty miles. The one to Reno was about one hundred and ten. While the altitude of the Reno flying field was but 500 feet, in order to reach it, the planes must attain an altitude of 10,500 feet if they flew the straight compass course, or about 5500 feet if they followed the railroads through the passes. The mountains were entirely free from clouds so Bill decided to take the straight course. He figured that he would save time by so doing.

As the plane gained altitude the mountains became more distinct. The snow-covered peaks made

their appearance. The valleys between the mountains were covered with trees, and Bill saw the railroad winding around to gain altitude before entering a river valley to cross the mountains in to Reno. A few miles more and Bill had left the railroad to take the direct course across the mountains.

When he reached the 10,000 foot mark he could see an endless chain of lakes nestling among the mountain peaks. They extended far to the North and South. He passed over peak after peak and finally saw the town of Truckee below. His path had again crossed that of the railroad. Shortly afterwards he saw the mountains slope off into the foot hills and the country leveled out. Somewhere ahead was Reno.

The railroad wound its way down through the foot hills. Bill headed his plane down and started to pick up speed. There had been few habitations in the mountains, but as the country became more level numerous ranches came into view. It seemed as if a ranch had been located everywhere there was a possibility of securing water. The green vegetation of the watered areas stood out in bold relief against the normal brown of the rest of the plain.

Reno came into sight. Bill picked out the landing field and headed toward it. He could see several planes converging on the airdrome when he was still some distance away. He did not know whether

they had started ahead of him or behind him. During his flight over the mountains he had not seen a single plane, and now suddenly at least ten came into view all at once. They were nearly all ahead of him, but with the increased speed that his plane had picked up as it lost altitude with the engine running full on he had gained on the others.

One plane seemed to keep right up with Bill. They approached the landing field together. Bill would not give way for the other, and the pilot of the other plane did not give an inch to Bill. The result was that they came down on parallel paths and both touched their wheels together.

A circle of the field and Bill landed just behind the other ship. They drew up to the "dead line" together. Bill stopped his engine and jumped out. He wanted to see which one of his squadron planes he had been racing with.

"Off again in thirty minutes, Breene," he called.

As he passed the plane which had come in with his Bill saw that Steele was the pilot.

"How did I ever catch up with you?" asked Bill, as they walked across to the checking station.

"I had some hard luck at Sacramento," replied Steele. "My engine started missing before I even left the line. I saw you coming in while the mechanics were working on it. I took off just ahead of you."

"Where's Bob Finch?" asked Bill. "Is he still in the lead?"

"He was when we left Sacramento," replied Steele. "We'll find out when we check in if he is still there."

"There's his plane over at the end of the line," exclaimed Steele, "I guess that he is still in the lead or his plane wouldn't be there."

It was as he had stated. Bob Finch was still leading the race. They met Bob at the office. He had arrived fifteen minutes ahead of the other two. Bob Finch was in first place, and Bill and Steele were tied for fifteenth. Bill had gained ten places in two controls. Such good luck could not continue. From now on he would have to compete against the best pilots in the race. The poorer pilots were being left behind. Every minute gained by flying on a direct course would now count more than ever, and any mistakes made would be impossible to rectify.

Bill studied his map as he returned to his plane. Battle Mountain, 169 miles away, was the next control. The railroad in between the two towns made a large letter "S." Anyone flying a straight course would pass over many miles of rough, mountainous, barren, uninhabited terrain. In case of a forced landing there would be absolutely no possibility of getting the plane repaired and continuing the race. However, if the straight course were

successfully completed the 169 miles would be cut down to about 125.

The race was still young, and there were many chances for any or all of the pilots to get in trouble before finishing. Bill decided that discretion was the better part of valor. He would cut corners where he could, but never get so far away from the railroad that he could not reach it if necessary.

Other planes were coming in while they waited on the field. Out of the twenty-five entries, twenty were on the field when Bill and Steele took off for the next control. Bill decided that he would be satisfied if he reached Battle Mountain in fifteenth place.

The two Imperial Valley aviators took off together and for several miles flew along side by side. The country over which they passed gradually became higher and rougher. They were flying over the great Nevada desert. Bill left the railroad to cut off a corner and Steele followed him. They reached the railroad again and saw the Carson Sink ahead on the other side of the railroad. If they now flew straight toward the next stop at one point they would be almost eighty miles from the railroad.

Steele started straight across country. Bill stuck to the railroad. When Steele saw that Bill was not following he cut back toward Bill. Thus they followed the Humbolt River and the railroad for some distance. Finally Bill decided that his engine

was performing well enough to cut across. He reached the small town of Imlay and then headed due East. Steele followed, and they flew across terrain in which there was absolutely no sign of habitation.

For forty miles the two planes flew across country which was absolutely barren with the exception of an occasional clump of sage brush or tumble weed. Water seemed to be as scarce as vegetation. There were not even any old dried lake beds like the Carson Sink. They had barely reached the halfway point in the short cut when Bill became alarmed as to whether or not it had been a wise move.

Once that thought had entered his head he imagined all kinds of things were the matter with the plane and engine. He thought that it missed fire every once in a while. Then he thought that his oil pressure was dropping. His ignition did not seem to be showing the amount of current passing through the ammeter that it should. As a matter of fact the plane and engine were functioning just as well as ever, but Bill's imagination was working overtime.

Finally Bill saw signs of civilization ahead of him on the horizon. He could make out the railroad line, trees, and finally the outline of a town. It must be Battle Mountain. As soon as he concentrated on the town in the distance all the troubles

in the plane and engine disappeared. The engine began running as regularly and sweetly as formerly.

Steele was flying beside Bill as they approached the flying field, and once again they touched their wheels together. No matter how many planes had come in ahead of them, and Bill could see quite a few on the ground, Steele and Bill had retained their positions with reference to each other.

Upon landing, Bill found that he was now tied for sixteenth place. One of the pilots who had left Reno after they had, had cut straight across country and had worked from eighteenth place to tenth place.

After another thirty minutes wait in which the plane was serviced and the log book brought up to date Bill and Steele took off together. Bill decided that he was not going to lose any more time by following the railroads. On all of the hops hereafter he would fly a compass course. For the first fifty miles the course took them over the railroads along the valley of the Humbolt. Then Bill kept flying straight ahead.

Steele followed Bill for a while and then turned to the North to get closer to the railroads. Bill had a lonely feeling after Steele had left him. The country beneath was very uninviting. He had to climb his plane to get over the mountains. The mountain sides were covered with rocks and had perpendicular cliffs scattered along at most unex-

pected places. There was scarcely any vegetation. To Bill it was much worse than the Imperial Valley Desert because here there was so much more of it. Then, too, the Imperial Desert was almost level, while this one was tilted and twisted so that there was no possibility of a landing place in case of emergency.

He knew that somewhere ahead of him the Great Salt Lake Desert lay, and that the next control, Salduro, was on the railroad in the midst of that desert. The distance from Battle Mountain was about 160 miles. He had been in the air for about an hour, and the country beneath showed no signs of flattening out for the desert. Surely there could not be much more of the mountainous country.

Before he knew it the salt desert opened up ahead. For miles and miles the white salt stretched from the North to the South. The railroad made a black path across its white surface. Bill wondered how the field force would put out the "T." The normal "T" was white, and contrasted strongly against the green or brown background of the aviation fields. Here, however, conditions were different. The white salt was dazzling with its brilliancy in the sunlight. A white "T" would blend with the salt. What kind of a "T" would they have?

The railroad was laid in a straight line across the salt bed. It was as straight as instruments could make it. Bill saw ahead a few buildings. There

had been no other habitations since he had left the town at the edge of the salt bed. The airdrome must be close to those buildings somewhere. He had been in the air almost an hour and a half. The distance he had had to cover by the short cut was less than one hundred and fifty miles.

As he approached the buildings he saw some planes on the salt. The airdrome must be there. Sure enough, it was, and it was marked by a jet black "T." The "T" was so plain that he wondered how he had missed seeing it before. Bill came down to touch his wheels and saw that the surface of the salt was as smooth as ice. He knew that he would have to be careful to land directly into the wind or his plane would ground loop. The tail skid could not dig into that hard salt.

Bill turned and dropped down to land. He leveled off, and the plane dropped until the wheels and the tail skid touched the salt field. The plane then rolled across the area outlined as a landing field. Usually, when a plane is landed on a field, the speed decreases as the plane rolls along, but here on the salt, there did not seem to be any decrease in speed. It appeared to Bill that the speed increased instead of decreased. Would the plane never stop rolling! There was one consolation, the salt field extended for thirty miles and he had that much room to roll before hitting any obstacle.

After a while the plane slowed up a trifle, and Bill became impatient to turn back to the "dead line." He found it hard to wait. He knew that if he turned too soon the plane would ground loop, yet he found himself turning. He tried to bring the plane back on its straight course, but it was too late. It seemed as if his impatience was liable to put him out of the race right here.

The plane turned with an ever-increasing speed, tilted up on one wing skid, then whirled. The tail of the plane came up slowly, then sank back again. The plane stopped, facing in the opposite direction. Bill did not have to get out to know that some damage had been done. Just how much he did not know. He had thirty minutes to clear the airdrome and retain his present position, but could he fix the damage and get serviced in that time?

CHAPTER XIII

DOWN FOR THE NIGHT

"Well, Breene," said Bill. "I wonder how much damage was done."

"There's one way to find out," replied Breene. "We can get out and look."

In the meantime other planes came in and landed. Some rolled past Bill's DH and others did not roll as far. Bill and Breene climbed out. The plane was standing with one wing almost down on the salt bed. Bill walked around the wing and saw in passing that the wing skid was broken. Then when he reached the nose of the plane he saw that one wheel was crushed. Beyond that, there did not seem to be any damage.

"You had better go over to the office and get some men to help you put on the extra wheel," said Bill.

"All right," Lieutenant," replied Breene, as he himself hurried off in the direction of the control station.

Bill climbed into the plane and threw out the tool

kit. He was going to have everything ready so that there would be no delay after the mechanics arrived. He did so much want to get away within the half hour. It was already well past noon, and he did not know how much farther the planes would be permitted to go that day.

He hoped that he had gained on the leaders in the race during the last leg of the race, but was not sure. Perhaps some of the others had also taken the straight course across the desert mountains. Other planes came in and landed. Some of them ground looped with slight damage, considerable damage, or no damage at all. Apparently, others were finding it as hard to land on the salt bed as Bill had.

How much time had passed since his landing? Bill did not know, but he was so impatient to get away that he thought the thirty minutes must surely have passed. However, no planes had as yet taken off. But Bill did not think of that. The only thing that he cared about at the time was to get the plane up on a good wheel so that he could see the extent of the damage.

It seemed ages before Breene returned with two other mechanics. They raised the wing while Bill took off the crushed wheel and replaced it with the spare. After securing the wheel in place, Bill inspected the plane. As far as he could see, there was

nothing else wrong except the broken wing skid, and that was not absolutely essential for the next leg. It could be replaced at the control where they were to spend the night.

Bill climbed into the plane, the mechanics started the engine and Bill taxied up to the "dead line." The starter rushed up to the plane before Bill had stopped his engine. Bill handed out his log book.

"You have just seven minutes to get serviced and started," said the starter. "That is, of course, assuming that the officer in charge is willing to pass your plane as being safe for the trip."

"Get some gas and oil in right away," said Bill to Breene. "I will see if we can get the plane cleared."

Bill rushed up to the office and found the officer in charge of the field. That officer was busy with reports and papers. He told Bill that he would be out to the plane in five minutes.

"It'll be too late to get anything done and get started on time if you wait that long," said Bill.

"You couldn't get anything done between now and then anyway," responded the official.

Bill then looked over the chart showing arrivals and departures. He had been the tenth pilot to land. He had gained six places by cutting across the mountains. Bob Finch was still in the lead. Steele was now in fourteenth place. If Bill had not been

so impatient and turned so soon out there on the salt he would leave in tenth place. That was a gain of fifteen places since leaving San Francisco. Now he might not be able to leave Salduro until the next day.

Bill returned to his plane. The time was almost up. He should be getting ready to take off. Why didn't the officer in charge come out and let him know what he was to do. Bill stood at some distance from the plane and waited. The other planes were taking off. Bill had watched seven planes take off when the starter came up to him.

"Why don't you get in your plane and get ready?" he asked.

"I have to wait until my plane has been inspected," said Bill.

"I received instructions to do that long ago," replied the starter. "I told your mechanic that you would leave on time. Your plane is O. K., but get that wing skid fixed when you stop tonight."

Bill was on his way toward the plane before the starter had finished. He might not be able to get off exactly on time, but he would not be delayed long. Breene was standing by with another mechanic to start the engine. The starter arrived to enter the time of departure, and Bill had his plane moving before the entry was completed. He grabbed the book and was on his way. The plane gradually rose

in the air, and Bill could see beneath him the deep trenches made by the Salduro Company for getting out the brine from which they secured the salt and potash. He thought how lucky he was not to have run into one of those trenches, for the ground loop had not caused damage enough to delay him.

There was no choice of routes to the next stop, which was Salt Lake City. The railroad ran practically straight, and the distance was an even hundred miles. Bill thought that he would be content if he could hold his present position through the next control. After that they would reach the Rockies, and then perhaps he could pick up on the leaders.

The only mental provision Bill made was that he was not going to allow anyone to pass him. With that resolve he flew along without trying to make an especially speedy flight. He tried to remember the planes which were ahead of him. Bob Finch was in a DH with the same speed as his. Of the eight others, four had been DHs, one was a Le Pere, there were two Spads, and an SE5.

He had an even break with the other DHs. The Le Pere was faster than the DH. The only opportunity he might have of passing it would be on account of poor flying by the pilot or mechanical trouble in the plane. Bill hoped that it would be his better flying that would enable him to pass the Le Pere. The Spad and the SE5 he did not fear at

all. They were slightly slower, and he was steadily gaining on them. As a matter of fact he was gaining on all the leaders, the first one off had left San Francisco twenty-five minutes before he had. Now he was but ten minutes behind the leader. If he could continue that pace he would be in the lead long before they reached New York.

Before he reached the city Bill saw the Great Salt Lake ahead. It looked like a regular ocean after all the arid ground Bill had been flying over. The air was so clear that he could see many miles in all directions. Then again he was flying at considerable altitude. The landing fields had all been above 4000 feet since leaving Reno.

It was then that Bill realized for the first time that perhaps the high altitude had something to do with the increased speed on landing at Salduro. The landing speed of all planes increased with the altitude of the landing fields, accordingly, he had landed faster and the plane had rolled along the smooth surface of the salt bed at greater speed. Bill resolved to be more careful during the remainder of the trip. A little care might lose a few minutes for him, but then again it might save many hours if it prevented a crash.

As he approached the lake Bill saw that the direct route would take him across the southern end of it. Bill headed across. As he progressed, the

shore went farther and farther away from him until by the time that he reached the middle he was about twelve miles from dry ground.

His engine was working perfectly and did not worry him in the least. As a matter of fact, he received quite a thrill from flying above water after flying over so much barren ground. Then the far shore loomed up in the distance, and soon he saw the city. A circle around the city and he had located the flying field.

This time Bill was very careful in landing, and came through without any damage. He stopped his engine and climbed from the plane. He stood for a while counting the planes on the ground. There were nine of them. He had neither gained nor lost during that leg of the race.

"I don't know how long we will be here, Sergeant," said Bill, as he left the plane. "It is getting late, and we may not be allowed to leave for the next stop. I think that we could make it all right, but the officer in charge of the control might not think the same way about it as I do."

"We have traveled quite a way today, Lieutenant," said Breene. "It wouldn't hurt my feelings if they held up all the ships. How far have we come?"

"It is something over six hundred miles from here to the coast," replied Bill. "Get the old bus serviced so that if we are cleared we can start off."

Bill met Bob Finch on his way to check in.

"Hello, Bob," said Bill. "You are a tough one to catch. This is the first time that I have been able to get a good look at you."

"It seems as if you will have plenty of time now," replied Bob. "The officials are in there now discussing the weather and the probability of checking us out. It seems there is some snow falling over the Rockies between here and Green River."

"When are they going to decide?" asked Bill.

"They have already decided and changed their decision twice," replied Bob. "That was enough for me. I told them they would find me out at my plane."

"I have to go in and check," said Bill. "I'll tell you what I find out when I return. You are still leading the procession, aren't you?"

"Just that, and nothing to spare," replied Bob. "That Le Pere came in abreast of me. It started out just ahead of you. It has gained over twenty minutes on me since starting."

The Le Pere was in the race with both feet then, reflected Bill, as he walked away. Its greater speed was keeping it in the running, and it was going to be a hard plane to beat. Bill checked in and listened for a while to the discussion regarding the continuing of the race. He looked at the weather report from Green River, "Blinding snow falling stop

visibility extremely poor stop dangerous for flying." That report had just been received. It decided the question for the officials. No planes would leave that night.

"All planes will leave tomorrow in the order in which they arrived," announced the starter, "allowing the same number of minutes between the take off of the planes as there were between their time in landing. Sunrise is at six-four. The first plane will leave at six-fifteen. Stake down your planes for the night."

Bill looked over the arrival chart. There were still twenty planes in the race toward the East. Two of the others might be repaired in time to continue. Three were completely out after crashes in landing. Two had smashed at Salduro and one at Battle Mountain.

It would be harder and harder on the pilots as the race progressed. The worst part of the country for flying was directly ahead of them. Perhaps it was better that they start over that section completely rested after a good night's sleep. If the snow continued they might be held up until the next day. Bill hoped that they could take off as planned.

"We stay here tonight, Bob," he said, after reaching the line of planes. "A heavy snow is falling at Green River."

"I guess that it's just as well," replied Bob. "I

want to fly over the crest of the Rockies in broad daylight. Somehow or other, I must get back the time I lost to that Le Pere."

"I am going to stake down my plane, find some food and then hit the hay," said Bill. "I think that we are going to have a hard day ahead of us to-morrow."

It was announced then that the first West bound plane had reached Rock Island. The West bound pilots had covered over 900 miles, against the East bound pilots' 600 miles. The weather had been better in the East, and the flights had been stopped by night and not by weather. The question now was, "could the East bound pilots make up the two hundred miles that they had lost the first day?" Two hundred miles meant two hours flying, and there were only a limited number of flying hours in any one day.

CHAPTER XIV

"FIGHTING A BLIZZARD"

THE next morning all the pilots were at the field tuning up their engines long before starting time. The weather was cold, the sky was cloudy and it did not look very auspicious for flying. Some of the pilots had difficulty in starting their engines on account of the cold. Bill and Breene were lucky in that regard as they managed to get theirs started with the first pull through. The Women's Clubs of the city came out to the aviation field and served hot coffee and doughnuts to the contestants.

At six o'clock everyone was waiting for the decision, whether the race would be continued or not that day. The weather report from Green River, Wyoming, the next stop, came in and settled the question. It read, "CLOUDS FIFTEEN HUNDRED FEET STOP PROBABLE SNOW STOP SLIGHT WIND."

The starter came over to the coffee stand and said, "First plane will start on scheduled time at six-fifteen. Others will follow at proper intervals. You

all know when you landed, so be ready for your signal to leave."

Bill and Breene hurried to their plane and started the engine. They were scheduled to take off ten minutes after Bob Finch and the Le Pere. The starting time was entered in their log book and they were soon on their way following the other planes. Bill climbed his plane until he ran into the clouds at two thousand feet. The logical thing to do was to follow the railroad for the 137 mile trip, but Bill decided that when he found an open pass to the East, he would try and follow the road. By doing this he would save ten miles.

The road ran through one canyon after another. At times he was barely missing the trees on the mountain sides but he met the railroad without accident and followed it in to Green River. He had been following another plane ever since meeting the railroad. Which plane it was, he did not find out until he landed. This short cut had moved him up into seventh position. The other planes following the railroad had lost about five minutes while making the extra ten miles.

The landing field at Green River was slightly over 6000 feet above sea level. Bill had not noticed this so much when landing. The plane rolled considerably but not nearly so much as at Salduro on the salt bed. There was no reason for delay and the pilots

took off from Green River on scheduled time. Bill started off as was his custom, allowing the plane to pick up speed before lifting it into the air. He did not notice that he was approaching the end of the field. Suddenly he saw that the field bordered on a steep cliff and before he had time to do anything, the plane had dropped off the edge of the cliff.

Due to the high altitude and the heavy load the plane was carrying, it had taken an extra long run before leaving the ground. Fortunately there was a considerable drop from the top of the cliff to the valley below and the plane picked up speed rapidly as it dropped. Flying speed was obtained and Bill leveled out a hundred or more feet above the valley. It had been very thrilling for a few seconds, but no damage had been done and Bill headed for Rawlins 140 miles away.

By this time the clouds had dropped. The general elevation of the ground was over six thousand feet. Bill was flying at about 7000 feet above sea level and was in the bottom of the clouds. The high mountains were covered by clouds and all the planes had to follow the railroad very closely. Here and there a flurry of snow was encountered but these only lasted for a very short time and Bill had no trouble flying through them.

Just before he reached Rawlins, Bill ran into a heavy flurry that continued until he reached the town.

He could not see far enough ahead of the plane to tell exactly where he was going, but saw the town suddenly appear out of the snow and was sure that it was his destination.

The landing field had been located in a half-mile race track. The area circumscribed by this size track is barely large enough for a landing field under the best of conditions. The track was 6600 feet above sea level, the highest field to be used during the race. In order to give additional space, one end of the track had been leveled off so that the planes when they overran the field could run up a short hillside. The falling snow made the landing more difficult in this already dangerous field.

Bill saw the field and dropped down to touch his wheels. He immediately appreciated the small size of the landing area and took particular pains to make a good landing on his next circle. Before he knew it the fence on the far side of the field loomed ahead. He gave the engine "the gun" and made another try. Three times he tried to land before he was satisfied. On the last attempt his plane ran right up to the edge of the track before it stopped.

"You are not a field officer," said Bob Finch when Bill had climbed out of his plane. "Why so many graceful leaps and bounds while landing?"

"I am not a bald eagle either," replied Bill.

"When it comes to landing on these mountain tops, I prefer to land below sea level in the Imperial Valley. Has the Le Pere run away from you?"

"Not yet," replied Bob. "It had some engine trouble on the last leg and I gained a few minutes on it. It is now in third place. Where are you now?"

"I am in seventh place and going strong," replied Bill.

It was very cold standing around waiting to get away. The planes were serviced and inspected as fast as they came in. The first ten planes were closely bunched but the others were now strung out all the way back to Salduro. Once again the citizens came to the rescue of the pilots and their mechanics and provided hot coffee for them while they were waiting.

Again there was a delay while waiting for a weather report from Cheyenne, the next stop. The clouds had dropped low over the airdrome at Rawlins. The highest point along the entire route must be passed to reach the next stop. On a straight line the distance was not great but it was going to be impossible for any one to fly direct with the clouds so much lower than the mountain tops. Bill examined his map and saw that the railroad pass was over 7000 feet. Evidently the mountains along the route would be much higher.

Finally the clearance was given the pilots and the planes started off. Bill watched each one in turn as it disappeared into the mist and haze. The snow had stopped but the clouds were now but a few hundred feet above the airdrome. Almost before he realized it he also was heading down the field with his engine wide open.

He reached the bottom of the clouds at 500 feet. There was no use trying to do anything other than follow the railroad. Before he knew it, it was snowing hard all around him. He dropped down closer to the tracks. He was barely missing the telegraph poles and yet could hardly see the tracks. Every once in a while he would have the impression that he passed an object higher than the others but what it was, he could not tell.

This method of travel was perfectly safe as long as the railroad did not run through a tunnel or go into a deep cut. If that happened, the pilot must jump his plane across the ridge or turn around. Bill tried to determine how far he could see on either side. The snow was so thick that he could not recognize any objects more than a few feet from his wing tips.

The air became rough and bumpy. This made flying extremely difficult. It was hard enough to follow the winding railroad without the bumps throwing the plane out of control.

Bill had hopes that the storm would abate but it seemed to get worse. The wind became stronger and much colder. He was flying through a regular Rocky Mountain blizzard. Suddenly the tracks dropped out from under the plane and the ground on both sides came up to meet the plane. The tracks were in a deep cut, the telegraph lines were running alongside the top of the cut and the clouds were down to the tops of the poles.

Bill was now in a quandary. He could not drop any lower on account of the cut. He could not climb any higher on account of the clouds. The railroad twisted and turned continuously as it climbed toward the continental divide. He had to keep it in sight and turn when it turned or he would crash into a mountain side. The snow became much thicker as he turned a sharp curve. He had the sensation of passing something quite closely although he could not see anything. The object left an impression on him as he continued and he came to the conclusion that it was another airplane headed the same direction that he was.

Once the tracks made a 180 degree turn and Bill lost them. He came to with a start as he saw the side of a mountain directly ahead of him. He banked his plane sharply and turned back. The track came into view and he flew over it. His compass was spinning and he could not tell whether he was

headed East or West. Then again there were so many twists and turns in the track that he might very well be headed West when he was following the tracks on their Eastbound course.

Bill did not know what to do. There was no way to tell which was the proper direction to go. If he was flying in the wrong direction, there was a constant danger of colliding with the following planes. He could not land as there was no level ground and had not been any for many miles. In the meantime the tracks were winding around like a snake. He followed them with his wings even with the cross bars on the pole tops as he did not have any desire to lose sight of those tracks again.

If the snow would only let up, he could circle and get a compass course which would be of some value but the railroad course changed direction so rapidly and at such great angles that his compass was spinning like a top. Bill decided that his life was of more value than the race and looked for a level spot along side the tracks. He could not see fifty feet away. It seemed hopeless.

Before he realized it, the railroad ran into a tunnel. How high was the mountain ahead? Bill had no way of knowing. He thought that the mountain sloped to the South and headed in that direction as he climbed his plane. In a few seconds he had lost all touch with the earth and was enveloped in snow.

Bill was completely lost and had no means of determining his location.

As long as he could keep clear of the mountain peaks he was safe, but they came out of the flying snow so suddenly that he was not sure that he could dodge them all. Still climbing he tried to keep his plane on a straight course so that his compass would come to a stop from its spinning and indicate his direction of flight.

He watched it carefully and soon saw that he was flying due South. That meant nothing. The general direction that he was trying to fly was a trifle Southeast. Little by little he headed back toward the general direction of Cheyenne. It was quite possible that during the flight through the blizzard he had flown considerably off his course. That being the case, the railroad might be miles away.

The cold was penetrating and he began to wish that he was safe on the ground. The air was getting rougher and rougher. At times the plane dropped a hundred feet or more and Bill could not see what was under him. He hoped that he had passed the high point on the flight, but there was always the possibility that it was straight ahead.

What was that he saw ahead? Was it a line of snags from a forest fire or was it a telephone line? He had no time to look and see for he would pass

them before he could definitely determine. Bill took a chance and turned along their general line. He dropped lower and saw some tracks below him. He was following a railroad again. It might lead into Cheyenne and then again it might be leading him to any one of a hundred other cities.

In any event it was a railroad and he would follow it. He became aware of the fact that the tracks were dropping lower all the time. The snow became lighter and he could see farther but there was nothing in sight by which he could orientate himself. Then he saw a town ahead. It was a fairly large sized town and might be Cheyenne!

CHAPTER XV

"MAKING TIME IN GOOD WEATHER"

It was a decided relief to see the town ahead after flying through such terrible weather. The snow had blinded the pilots so that they could not see beyond their wing tips. The wind had been so strong that the planes were buffeted around like corks in a storm at sea, and the clouds had formed a ceiling overhead which had kept them from climbing up to get out of the rough air.

No matter what town it was, Bill was more than glad to see it. He had been flying for over an hour and a half in the worst kind of weather. It was so cold that he was chilled through. The snow was thinning out rapidly as he flew along so that by the time he reached the town, the air was clear. Bill continued along the railroad and passed over the town. Then he circled it for some identifying mark.

Much to his satisfaction he saw the airdrome and came in through force of habit and touched his wheels to the ground. There were two or three planes on the ground. Bill did not take the time to

count them. He was going to land and get a rest from the nervous and physical strain under which he had been laboring. Then he had a flash of the insignia of his squadron on one of the planes. Was it possible that he had doubled back on his tracks and the plane was Steele's? Steele was at least two controls behind him. There was no way to find out other than land.

"Give me your book and I will check you in," said the starter before Bill could climb from his plane.

"Where are the others?" asked the starter on seeing the time of Bill's departure and his name in the log book. "You are the third plane to land here, when as nearly as I can judge you were the seventh to leave Rawlins."

"If they had the same blizzard to fly through that I had, they are liable to be anywhere from here to Texas," replied Bill, as he climbed out.

It had been a hard flight but he had come through all right and had moved up from seventh to third place. The two planes ahead of him were both DHs. The Le Pere had fallen by the wayside, somewhere. There was a chance that the other planes had found landing places and had stopped until the snow fall slackened. Bill was now sure that he had passed one of the planes while following the railroad.

The weather was reported good at the next control, so there would be no delay in taking off. While

waiting for the plane to be serviced and the starter to clear him, Bill saw several planes come in to land. Then Bob Finch passed to go to his plane for the take off. Bob was still in the lead but had only four minutes start on Bill.

From Cheyenne the ground dropped rapidly until it reached the great Western Plateau and then dropped gradually to the Allegheny Mountains. Flying could not possibly be so hard from now on. Bill took off feeling much more at ease in his mind. The mountains were behind him and there was nothing but level ground for the next 1600 miles.

Between Cheyenne and Sidney, a short hop of 90 miles, the ground dropped from 6000 to 4000 feet above sea level. There were no mountains or even high hills after flying a short distance. The clouds were high enough so that he could always pick a landing field. It was a pleasure to fly under such conditions. He reached Sidney almost before he knew it, but when circling the airdrome saw three planes on the ground.

How could a plane pass him on such a short hop? That bothered Bill so much that he did not concentrate on his landing with the result that he almost wrecked his plane. He hit the ground with his wheels and bounced thirty feet into the air. He opened his throttle and the engine picked up in time to save him from hitting again.

On his next attempt, he made a perfect landing. He taxied up to the line and jumped from his plane. He met Bob Finch at the starter's office.

"Who came in here ahead of me and how did he do it?" asked Bill.

"I am still ahead of you and then Emit has been ahead of you all the time," replied Bob.

"Well, who belongs to the other plane?" asked Bob.

"That is Bevin flying West," answered Bob. "He is the first of the other contestants. We will probably meet them from here to Chicago."

"I didn't see how I could have been so slow on this hop to have anyone pass me and yet I did not see where any other plane could come from," said Bill. "I am hungry, is there anything to eat around here?"

"Just the same as at all the controls, hot coffee and sandwiches," replied Bob.

Bill checked in and then secured some coffee and sandwiches. He carried these to Breene and then ate some himself. He was ready to start again. Messages began to come in giving details of planes out of the race. There were now but fifteen of the twenty-five starters from San Francisco and but thirty-five of the fifty starters from New York in the race. The others had been forced out by mechanical troubles, bad landings in impossible weather or planes which could not get started within

the time limit on account of being too badly wrecked.

Between Sidney and North Platte, Bill passed two planes going in the opposite direction. The first was a DH and this was followed quite closely by an SE5. They were close on the heels of their leader. Bill felt sure that none of those planes would be cleared from Cheyenne unless the weather cleared considerably.

The farther East he traveled the higher the clouds seemed to be hanging. This was not altogether a fact, thought Bill, as he looked around. The country was practically level in all directions. Here and there rivers wound their way through the plateau. Each one of the control stations was much lower than the last. It was accordingly possible that the clouds were at the same height and the ground was dropping. There was a difference of about 1200 feet between Sidney and North Platte. That would account for the higher clouds.

There was no chance of gaining on either of the two men ahead of him now for the railroad was almost straight. Bill could see it stretching out into the distance before him. He was flying along a river and could see the bends of the river as he flew on a straight line to cut down the flying time as much as possible.

North Platte was at the junction of two rivers. They were both in sight for many miles before Bill could see the town itself. The rivers converged and

then ran along parallel courses for some time. The town came into view and Bill flew over it to reach the landing field on the other side.

He could not tell whether or not he had retained his position in the race for there were so many planes on the airdrome. It would be a cinch to pick out aviation fields in this country, thought Bill, as he made his landing. The country along the river was as flat as a pancake. So that the fields could be made large enough for anyone, in fact they could extend from one town to another.

"Still in third place," said Bill to Breene after he had checked in. "We haven't much chance to gain on the two ahead of us unless something goes wrong with their planes."

"Judging from what we have been through today, anything can happen at any time," replied Breene. "We still have a long way to go. Where will we spend the night?"

"It is two-thirty now," replied Bill. "We might possibly reach Omaha. I hope that we can, but as you say, one can never tell."

"If we flew through that blizzard over the Rockies, I don't see any reason why we shouldn't be able to fly through anything over such flat ground as this," replied Breene.

At North Platte they left the railroad and traveled due East toward St. Paul. The only land marks

were section lines that followed the cardinal points of the compass. This made navigation easy but made the flying rather monotonous. Bill looked forward to seeing the ranch houses that were located along the streams and rivers. Occasionally they would pass over a road or railroad cutting across their path, but for the most part, it was just one section line after another.

Bill knew that he was getting tired. He could not wait to get to the next stop. The miles seemed to pass so slowly. He decided to check up his speed and timed his travel between two known points. The speed of the plane was but sixty miles an hour. No wonder they seemed to be traveling so slowly, they were bucking a forty mile head wind.

It was quite possible that this wind would continue all the way across the plains. That being the case, perhaps they would not reach Omaha that night. The Westbound planes became much more numerous as they continued their journey. Some of them would fly so close that Bill could almost recognize the occupants. A glimpse of the plane and then it was gone in a flash. They were having a following wind and were making about 140 to 150 miles a hour, while he was laboring along like a truck.

Bill reached St. Paul much more tired than he had been at any time during the flight. The head wind

had taken the pep out of him. He would have been satisfied to spend the night there instead of having to buck that wind for another 130 miles.

There was no change in the positions of the planes at St. Paul. Bob Finch was still in the lead and Emit was second. Bill had landed just four minutes after Bob. It was a thrilling race in which each pilot was putting out every effort to win. Just what time was being made by the other pilots, Bill did not know and did not try to find out. His only problem now was to get to New York first.

"I will clear you for Omaha if you start on time," said the starter at St. Paul. "You won't have much time to make it though, for this wind will make it a slow trip. I think that you will get in before sundown and that is all that is required. I won't be able to clear any of the planes which come in after you."

Bill was tired and wanted to rest. The half hour would pass before he knew it, and the next leg would be a long one. Perhaps it would be better to stay here for the night.

Sergeant Breene must have read Bill's mind, for he exclaimed, "Lieutenant, don't forget that we are going to spend the night in Omaha."

"I'll get off on time," replied Bill. "You can put down my starting time right now."

"I can't do that," said the starter. "However, if you are not ready to start on the minute when I

clear you, then you will not be able to leave until tomorrow."

Bill threw himself on the ground and rested. Breene walked around the plane while it was being serviced. Then he walked over to where Bill was lying. Occasionally he looked at his watch. Breene had made up his mind that they were going to get just as far that day as they could.

"Come on, Lieutenant," remarked Breene, "we have just four minutes to get going."

They went to the plane and Bill climbed in. Either he was too tired to concentrate on the job in hand, or the engine was cold, for they could not get it started even after the prop had been pulled through several times. The starter was standing by with his watch in hand.

"Get out of there and let me start it," called Breene.

Bill climbed out and the sergeant was in the cockpit in a few seconds working with the controls, gas lines and ignition. The motor started just as the starter was putting his watch away and was approaching the plane. Bill was sure that he was coming to tell them that they could not get away that day, but he changed his mind and running alongside of the plane as it rolled over the ground, he handed the log book to Bill, and waved goodbye.

This was more natural, heading into the wind and

continuing on their journey. It was an old saying throughout the Air Service, "If you have no compass, just head into the wind and you will reach your destination nine times out of ten." It was certainly true in this case.

The time dragged heavily as they flew along, the country became much more thickly populated, ranches more numerous, small towns were visible in all directions but the miles still dragged along.

They crossed the Platte River and then had another long tedious stretch of country, before they crossed it again. This was the last prominent land mark before reaching Omaha. Finally Bill could see the smoke from the city in the distance but it did not seem to get any closer. The sun was sinking behind them. The shadows were getting longer but their destination seemed to be always miles in the distance.

The trip seemed to have taken several hours when Bill finally landed, but in reality it had taken but a trifle over two hours. It had been a long two hours for both Bill and Breene but that portion of the journey was now in back of them. It was a relief to get that leg completed for the wind might be even stronger the next day, or what was even worse, storm or fog might appear. Just because the dangers of the Rockies had been surmounted, was no guarantee that the rest of the trip would be smooth sailing.

CHAPTER XVI

"LOST IN THE FOG AND HAZE"

"THAT last leg of the flight yesterday was terribly long, Bob," said Bill Bruce to Bob Finch as they drove to the airdrome the next morning.

"I thought that everybody in the race would pass me before I arrived," replied Bob. "That head wind was awfully tiresome. I never even looked to see whether I had lost or gained on Emit."

"You gained on him," said Bill. "You now have a ten minute start on Emit and he has a two minute start on me. I don't know how you made up the time."

"As soon as I found that there was such a strong wind blowing, I flew along just above the tree tops," explained Bob. "Evidently there was that much difference in wind velocity between the two altitudes."

"We have a fine day now," said Bill. "It is slightly cloudy but there is no wind at all to speak of."

"I hope that it stays this way for the rest of the trip," replied Bob.

Breene already had the engine of the plane running when Bill arrived. Bill inspected the plane and was satisfied that it was in fine shape. The engine was functioning perfectly. Everything was right for a most successful flight.

"We leave in fifteen minutes," said Breene, when he throttled and climbed out to meet Bill.

"Stop the engine when you have it warmed up and we will start it again a few minutes before taking off," said Bill.

Bill looked around the airdrome. There were at least twenty airplanes parked along the sides. Three of them were from San Francisco. The others from New York. The starter at St. Paul had held up the other Eastbound planes. By fighting that strong headwind, Bill had gained 130 miles on those following him. It was a good lead and he was determined to keep it as there was no telling when he would need it.

"You are scheduled to leave in two minutes," said the starter.

Bill jumped. He had been so busy watching the other planes and thinking about the race that he had forgotten about starting. He jumped into the plane and had the mechanics start the motor. Breene climbed into the rear cockpit and they were

ready to take off. By the time the time of departure had been entered in the log book, they were due to leave.

They left Omaha in wonderful spirits. There was no bad weather in sight, no strong wind against them, and everything seemed to be in their favor. They had not gone far however, when a fine rain encompassed the plane. That was not so bad, for it did not cut off their vision to any great extent. Bill dropped closer to the ground so that he could check his location occasionally and continued at the same flying speed.

As they progressed, the rain storm became more severe. Bill came to places where the rain was so heavy that he could not see at all. The water formed a film over his goggles and he found that he had to continually wipe them off or be completely blinded. He could not see the ground under him unless he flew just above the tree tops. This was all right provided that the ground had no abrupt hills but there was always the danger of there being some elevation which could not be anticipated.

The storm varied in intensity. For a while the rain would fall in torrents and then Bill would come to a place where there was hardly any rain. At first he tried to dodge the squalls as he saw them ahead of him, but in doing so he went considerably off his course. Every time that he turned to avoid

a heavy storm area, he lost time. Time was an element too important to neglect even to dodge rain. Bill decided to take a straight course and stick to it.

Finally he thought that he should be approaching Des Moines. He could not see any great distance ahead so could not tell just how far out he was. The railroads seemed to be all heading toward the same point a short distance away. That was a good sign for it indicated that the town could not be far off.

Suddenly he ran out of the rain and the city of Des Moines came into view directly ahead. He had reached the next control stop. If he could only land and get away again before that rain storm reached the airdrome. Bill knew that all those storms worked their way from West to East and that it would reach the flying field sooner or later. Once it started raining the officials would probably hold all planes on the ground until it stopped.

Bill landed without wasting any time. He rushed up to check in and found that Emit had not arrived. Bob Finch was still in the lead, but he had lost five minutes while flying through the storms. Bill was now in second place with the first man only seven minutes ahead of him.

"Bob, we had better get away from here or they will hold us," said Bill. "That rain storm is coming this way fast."

"There's nothing that we can do about it," replied Bob Finch. "We have to stay here for thirty minutes."

"I hope that we get away before it hits here," said Bill.

"I think that we will," replied Bob. "It was some distance back when I came through."

"It wasn't very far back when I came through," said Bill.

Bill worried during the entire thirty minutes that he was waiting. He continuously looked toward the West as if expecting that the rain would be upon them. It was drizzling slightly when Bob Finch took off. Bill could think of nothing worse than being kept back after Bob had left. It would certainly be the irony of fate. During the seven minutes that he had to wait, the rain became harder, slackened up and then settled into a steady gentle rain.

"I hesitate about starting you," said the starter. "This rain is getting worse all the time."

"I will be out of it in three or four minutes after leaving," replied Bill. "The edge of the storm has just passed by."

"Well, here goes," said the starter. "I am clearing you but if you have a forced landing on account of the storm, I am out of luck."

"You won't have any trouble on that account," called Bill as he opened his engine.

It was as Bill had predicted, in a few minutes he was out of the rainy area. The sky was cloudy but the clouds were high enough so that they did not interfere with flying. From Des Moines to Rock Island was a good 150 miles but Bill made it in exactly an hour and twenty minutes. He thought that he would make up some time on Bob. Upon landing he found that Bob had also made the leg in the same time.

Chicago, the next stop, was also a one hundred and fifty mile hop. As Bill flew along he found that Illinois was rather difficult to fly over and keep on the proper course. There were so many railroads and roads that there was always the tendency to follow one of them rather than cut diagonally across toward the big city. He hoped that Bob was having just as hard a time as he was.

Once again he saw the numerous railroads all converging ahead of him. There was no doubt now but that Chicago was a short distance ahead but the murky haze in the sky hid the city and the Lake beyond. He was flying over the city before he knew it. There were houses and buildings without end. Bill cut across to the lake shore line and followed it. In case of a forced landing, he could drop down on

the lake shore or in the water adjacent thereto.

He could not find the airdrome when he reached the place where he judged that it should be. Bill circled and started making a systematic search. Finally he was about to give up when Breene slapped him on the back and pointed off to the side of the plane. Bill looked and sure enough there was the landing field.

Bill banked his plane sharply so as to keep the field in sight. He was not going to take any chances of losing the field again. As he came in to touch his wheels, another plane dropped down at the same time. Bill was too busy with the handling of his controls to look at the plane to identify it. He made another circle and landed.

Upon arriving at the checking station, he found that he had caught up with Bob. The haze had been too much for both of them and Bob had lost more time in it than Bill had. They were now on even terms.

The two planes left Chicago together. They ran out of the haze a few miles out and traveled along side by side. Neither seemed to be inclined to take a chance of damaging his engine by opening it up to get more speed. Each was waiting for the other to make a mistake. Thus they continued to Bryan, the next stop 160 miles away. When it came time to drop down and touch their wheels, each waited

for the other and they came down together. They were still tied for first place.

"I am not going to be so polite on the next lap," said Bob after they had landed. "I am not going to ruin my engine, but I am not going to wait for you either."

"The same holds true here," replied Bill. "I waited for you to come in and touch your wheels but the next stop is going to be different."

Once again they left a control stop together. Cleveland was their destination. It was 150 miles away, but there were numerous manufacturing towns along the route. The course was a very easy one to follow for they had the shore line of Lake Erie to guide them. The clouds had dropped considerably and as they reached the lake shore, the murky haze again was in evidence, only worse. Bill lost Bob as they entered the haze. It was now each man for himself. Bill followed the shore line and passed over one town after another. The haze made the flying extremely hard. It was almost as dark as night. At places the mist turned into a fog that his eyes could not penetrate. Sometimes he flew around these places and other times he flew through them.

The smoke from the factories in the towns, combined with the haze to make the day even darker. At times it was so dark that he could not distinguish

the water in the lake. There was no wind to make ripples and the haze and water blended into one another.

A large town came into view under him. He thought that it must be Cleveland. He circled the town to get orientated. After several circles he was still at a loss as to his position. He flew down low to get a look at some sign which might identify the place—not a name anywhere to be seen. Bill was sure that the town was his destination, but he could not locate the landing field. He made slightly larger circles hoping that the airdrome would appear through the fog, but all he could find were factories and houses.

Bill changed his course several times always hoping to find the aviation field. He started flying in straight lines North and South and thus cover every square yard of the ground under him. It was no use. He was lost. He had already lost fifteen or twenty minutes in searching for the field. To stay in the air any longer would mean further loss of time. Bill decided to land and ask.

He looked around for a field large enough to land in but could see none. The area was cut up into small sections with fences dividing them. Once again he started his circles and came to a large open space on a small farm. It looked as if a crop had just been harvested. Bill circled to see if the field

was of sufficient size. It was not any too large but he thought that he could get away with the landing.

One more circle and he headed into the wind. The plane dropped down and Bill leveled off a few feet above the ground. The field was covered with deep furrows which made it probable that the plane might turn over on its back. Bill was committed now, and determined to see it through. He cut his throttle and let the plane sink to the ground.

CHAPTER XVII

"THE LEADER GAINS IN THE RACE"

Bill leveled off his plane a few feet above the rough ground and allowed it to sink down to the soft soil. He kept his wheels and tail skid in the air as long as he could, so as to make the landing as slow as possible. The plane stayed in the air for quite some time and then dropped with a bump. It rolled a short distance and then the wheels sank into the ground. The plane came to a sudden stop. Too suddenly, for the tail kept on moving.

Bill could feel the rear of the fusilage going up into the air. He hoped that the plane would not go over on its back. He had a sickening feeling in his stomach. If the plane went over on its back, they would be out of the race. Then again, he would lose many hours if the plane only went up on its nose and broke the propeller. In any case things looked bad for a few seconds.

Finally the upward movement of the tail of the airplane stopped. It seemed to hang suspended for a short time and then dropped down with a bang.

They were down on the ground but in all probability, there was some damage to the plane.

Neither Bill nor Breene lost any time in getting out of the plane. Both wanted to see what damage, if any, had been done. As Bill hit the ground, his feet plunged into the ground above his shoe tops. That explained why the wheels had sunk almost up to their hubs. It was quite obvious that there had been considerable rain in that locality.

"We'll look her over and see if she is all right," said Bill, as they walked away from the fusilage. "You look at the tail skid and the rear surfaces Breene. I will inspect the landing gear and the propeller."

So far as they could find out, the plane was in good condition in spite of its rough treatment. It was fortunate that the ground had been soft for it had acted like a cushion when the tail dropped down. The propeller had stopped in a horizontal position and was well clear when the nose of the plane had tipped down.

In the meantime several men came running out to the plane.

"In what direction is the Cleveland airplane field?" asked Bill of the first one.

"In that direction," the man replied pointing to the North.

"How far is it?" asked Bill.

"How far would you say, Jim?" asked the first man of another who had arrived.

"I should say about two miles," replied Jim.

"I think that it is nearer three," said the first man.

"Not a bit over two and a half at the most," said Jim.

"That's close enough," interposed Bill. "Two, three or four makes no difference. Help get this plane started and over to the edge of the field, will you please?"

"What's the matter," asked Jim, "did you fall?"

"No," replied Bill, "lost our way and came down to find out where the landing field was."

"Lost were you?" continued Jim.

"No, we knew where we were but we didn't know where the landing field was," replied Bill impatiently.

He was losing valuable time. It was getting late and the haze was constantly getting thicker. He wanted to get away as soon as possible. By this time there were eight or nine men around the plane. Bill climbed in the cockpit and Breene, with the assistance of two of the spectators, started the engine.

It was not an easy job to move the plane. The wheels were so deep into the soft ground, that the engine would not pull it out. Then there was the possibility of a clump of mud hitting the propeller and cracking it. Every time Bill opened up the

engine, the propeller threw large lumps of mud in all directions.

Breene put several men on each wing and they rocked the plane as Bill opened the engine. In this way they managed to get the plane in motion. Once it started moving, it was fairly easy to keep it going. Thus they taxied to the end of the field. It was another big job to turn the plane down the field as the wheels sank into the ground as soon as they stopped rolling. By lifting on the wings and rocking the plane, everything was ready for taking off.

Here Bill was faced with another problem. The field was short and the plane would not pick up speed very rapidly in the mud. The rapidly rotating propeller was liable to catch some mud and break into a thousand pieces. Bill asked some men to stand by the two wings and give the plane a start forward when he signaled. Breene climbed in, Bill opened his throttle and gave the signal.

At first the plane would not move in spite of the efforts of the engine and the men. Then it started moving ever so slowly. It seemed as if it would never get up enough speed to ride over the top of the soft ground. Soon Bill saw that the men could no longer keep up but the plane was well down the field. As they progressed, the propeller threw mud in all directions. One clump caught Bill in the face as he looked over the side of the fusilage to watch

the ground. He wiped it off as well as he could with one hand. The other must be kept on the controls.

The plane was still on the ground when the fence at the end of the field showed up a short distance ahead. Bill made no effort to get the plane off until the last minute. Then he pulled back on the stick and hoped that he would make it. The plane hesitated for a moment and then left the ground. It looked as if the wheels would take the top wire with them. Bill was sure that he felt the landing gear strike the fence.

They were in the air again but the engine vibrated very badly. There was no doubt but that the propeller was either badly cracked or had lost a piece. It was just as far to circle and land in that field as it would be to continue to the regular landing field and Bill continued in spite of the vibrations.

As they flew along, Bill examined the ground closely to locate the airdrome. His field of view was limited to a small area almost directly under the plane. Suddenly the field appeared out of fog. Bill came down and touched his wheels. As he opened his throttle to circle the field, the vibrations became much worse. It seemed as if the whole engine was going to jump out of the plane. Bill closed the throttle, only giving the engine sufficient gas to support the plane in the air. Thus they staggered around for the landing. They had flying

speed and no more. There was the constant danger of a stall, the resulting spin and a terrible crash.

Bill was much relieved when he headed into the wind and came down for his landing. He brought the plane down carefully and taxied up to the "line." He stopped his engine and looked for the mechanics who would install a new propeller. They must also inspect the engine mountings to see that no damage had been done to those parts.

There was not a single man coming toward the plane. This made Bill feel rather peeved. He still had hopes of getting off within the thirty minutes. He jumped from the plane and headed toward the office. He was after service and was going to get it.

"Where are all the mechanics?" asked Bill, as he burst into the office. "I need a new propeller, want my engine mountings inspected and gas and oil in my tanks."

"What's your big hurry, young fellow?" asked the officer in charge of the field. "You have plenty of time."

"I have been here for five minutes already and have but twenty-five more to get away," replied Bill.

"Well, there are several reasons why you should not hurry," said the officer. "The first is that you get all excited. The next is that you will not get away tonight. The last is that even though you had time to reach Buffalo, which you haven't, we

could not clear you on account of the fog. Now tell us what you want and I will see that everything is fixed for you to start the first thing in the morning."

Bill recounted his troubles. He told of his start from Bryan where he was on even terms with Bob Finch, the leader in the race, and then outlined his experiences after they had separated.

"I need a new propeller and there may be some tightening up to do around the engine bed," he concluded.

"We'll have plenty of time to work on your plane," replied the starter. "There will be no planes in here now as all entries have been stopped at Bryan on account of the fog. Finch and yourself were the only ones to get through."

"Where is Finch now?" asked Bill.

"He left here about an hour and a half ago. He would not have been cleared five minutes later as the haze was too bad. We were worried about you until you came in. You are not nearly as bad off as you might be. Suppose that you had been mired down so that you could not get out when you landed in that field? Of course Finch is one jump ahead but he has a long stretch ahead before he reaches San Francisco."

"I guess that you are right," replied Bill. "I couldn't help but feel that things were breaking against me. I guess that it is all in the game. I

will be able to get to New York by tomorrow night. Bob will have a couple of hours start on me but as you say, it's a long way yet to the finish line."

So the race stopped for the day. Bob Finch leading the way to New York at Buffalo. Bill Bruce in second place at Cleveland. Then three others followed, all held up at Bryan, Ohio.

The leader, Lieutenant Belvin, of the Westbound pilots had reached Battle Mountain, Nevada. The others were one or two controls behind. The Eastbound pilots did not have as long days as the Westbound ones for they lost an hour at each point where the time changed. This would be equalized on the return trip.

Bill had lost about an hour and a half while searching for the landing field and Bob Finch had been able to take advantage of Bill's misfortune. He was now 180 miles ahead.

CHAPTER XVIII

"THE RACE HALF OVER"

THERE was still a thick haze all around the airdrome when Bill arrived next morning. For a while it looked doubtful if he would be allowed to take off, but this doubt was removed when the weather report from Buffalo arrived showing a clear sky there.

Bill took off as soon as his log book was authenticated. His plane had been thoroughly inspected and nothing found wrong with the exception of the propeller. The propeller had been so badly cracked that it was remarkable that it held together for even such a short flight. The latter part of the trip had been accomplished with Bill riding in the arms of Lady Luck. There was no other explanation for it.

The course to Buffalo was along the shore of Lake Erie. At first the air was full of the dirty murky haze. Bill had to fly down close to the water's edge to keep on his route. Then the air cleared and the flight was a most pleasant one. He reached Buffalo

and landed. His first question was to find out how long Bob Finch had been gone.

Once again Lady Luck was on Bill's side. Bob had been held up for thirty minutes on account of engine trouble. Bill had gained thirty minutes. There was not the slightest chance of catching Bob before they reached New York, but every minute gained now made so much less to make up on the return trip.

Bill left Buffalo exactly on time and was on his way to Rochester. This was the shortest hop on the flight, only fifty miles. It merely cut off the hump which projected in between Lake Erie and Lake Ontario. Bill reached his destination almost before he knew it. The flight had taken him across the fruit orchards of Northern New York and then for a short distance along the Erie Canal.

The next leg, to Binghamton, was across the lake region. There were lakes in all directions. Small ones and large ones scattered here and there. At the head of one was Hammondsport, the home of the Curtiss Airplane. Bill would have liked to have flown over the town but could not spare the time. However, he did fly directly over Ithaca and obtained a good view of Cornell University.

This section of the country was as picturesque as any that he had crossed. The Western Mountains were magnificent in their splendor, but he had not

been able to see much of them on account of the clouds and snow. The mid-western scenery was extremely monotonous. The same generally level, rolling, water-worn terrain for mile after mile. The beauty of the Great Lake region was marred by the murky haze which spread out in all directions. Here in New York State the air was clear and the features of the ground spread out like a map beneath the plane. It was a beautiful view that he had, no matter in which direction he looked.

Bill was impatient to get away after he had landed. The next hop was the last. New York was his next stop and the race would be half over. Only 140 miles to go. There was no one who could pass him now and he might make up some time on Bob Finch.

There were other incentives for his early arrival at Mineola. His home was in Flower City, a short distance from the flying field, and he had served at Mineola while waiting transportation for France. All pilots would undoubtedly be required to stay over at the half way point until their planes could be inspected and repaired for the return trip. That would give him a chance to go around and see his family, look around the flying field and see any changes which might have been made. Bill hoped that everyone would be held up for at least forty-

eight hours. That would give him time to do everything he had planned.

Once again he was in the air. The ground seemed to pass under the plane so slowly. He checked his speed against the map and found that he was making one hundred and twenty miles an hour. He must have a twenty mile tail wind. He was traveling much faster than he thought. It was his impatience to get there which made his speed seem so slow.

The Hudson River appeared in the distance and Bill found that he had not been paying enough attention to his course. He had hit the river twenty miles farther North than he should. He turned his plane down the river and soon saw the congested buildings of the City. He headed across the North edge and came to Long Island Sound. Across the sound was his destination.

In a short time he reached the shore of Long Island and then different small towns appeared everywhere. Bill headed for Mineola and landed. The race was half over.

"Where have you been?" asked Bob Finch as Bill came into the office to check in, "I have been waiting for you for a couple of hours."

"I bet you haven't been here for half that time," said Bill.

"You are right," replied Bob, "my engine has

been kicking up ever since I left Buffalo this morning. I was lucky to get here at all. It missed badly all the way in from Port Jervis. I beat you in by forty-five minutes."

"How long will we stay here?" asked Bill.

"It is not decided yet," said Bob. "The notice on the bulletin board directs all pilots to report back in time to start at the end of twenty-four hours, although it may be that they will not start for forty-eight. We all take off twenty-four or forty-eight hours on the dot, after our arrival. That's as much as I know."

"Let's look at the chart and see where the others are," suggested Bill.

The race had been very close. Lieutenant Belvin had reached San Francisco in two hours shorter time than that required for Bob Finch to get to New York. The other pilots, with the exception of Bill Bruce, had not as yet reached their destinations. Thus it was that Bill was in third place in the race. Bob Finch was in second place and had finished the first half an hour ahead of Bill. Bill was three hours behind the leader.

"Let's get the mechanics started on our planes," said Bill. "Then we can go home for the rest of the day. We may have to start back tomorrow."

When they arrived on the "dead line" their planes were no where to be seen. Evidently they had al-

ready been taken to the hangars to be worked on. They found their planes with the cowlings off and several men working on the engines and controls. After watching the operations for a while, both Bill and Bob were convinced that there was nothing to be gained by staying. The mechanics knew their jobs and could be trusted to do their work well.

"We may have to leave here tomorrow, Breene," said Bill to his mechanic who was working with the others.

"We will be all ready, Lieutenant," replied Breene.

"It will be somewhere around noon," said Bill. "I will be back tomorrow morning to see that everything is all right."

"I would never have arrived here when I did if I had not had a tail wind all the way from Cleveland," said Bill as he and Bob walked back to the office. "I averaged about 120 miles an hour for the day."

"We will be lucky if we reach Rochester on the way back, if we start here at noon," replied Bob.

They saw another notice on the bulletin board when they reached the operations office. The lead plane was to take off at ten o'clock on the second day after landing. The other planes were to leave at intervals corresponding to the difference in time of their arriving. Thus Belvin would leave San Francisco at ten o'clock, Bob Finch would take off at 12 o'clock and Bill Bruce would leave at one.

"Why Bill Bruce, we didn't expect you to arrive for some time."

Bill and Bob were leaving the office and had just stepped out the door. Bill looked up and saw his mother and father waiting for him.

"Hello Bob," said Mr. Bruce. "Your mother and father will be over for you soon. We did not see how either one of you could get here so soon. We thought it would take you much longer to get here from Buffalo and Cleveland. They told us when we called up the field that Bob would get here early this afternoon and that you, Bill, would not get in until late."

"We both had the assistance of a following wind," explained Bill. "Bob did not get as much benefit out of it as I did, for his engine began playing pranks on him."

"We are proud of you both," said Mrs. Bruce. "How long can you stay?"

"We have to leave the day after tomorrow," replied Bill.

"As soon as that?" said Bill's mother. "Can't you stay over for another day?"

"Not and have a chance to win the race," replied Bill.

"Here come your mother and father now," said Mrs. Bruce to Bob. "We will see you when you get to Flower City."

"The whole town has been watching for you two boys," said Mr. Bruce. "The papers have been printing details of the race and we could always tell where you were. Just think of it, two Flower City boys first and second in a trans-continental airplane race.

"Not first and second but second and third," explained Bill as they drove away.

The next morning Bob Finch came over to Bill's house.

"Here's an account of the race, Bill," he said, as he handed Bill the morning paper.

Then it was for the first time that the two pilots obtained their first full account of the details of the race. The numbers had dwindled until there were only thirty-eight out of the original seventy-five left in the race. Twenty-five of the planes which left New York had already landed or had a good chance to land at San Francisco. Thirteen of the East-bound planes had arrived at their destination. The first three to land in New York were all DHs.

"Why, I never thought that SE would get through when I passed it between North Platte and Cheyenne," said Bill.

"Well, I still think that a DH is going to win the race," said Bob.

"Sure you do," replied Bill, "you are flying one."

The day was gone before they realized it. They

had been busy from morning to night. A visit to Mineola to see how their planes were being taken care of took up several hours. Then there were constant visits from their friends in Flower City. The boys had put Flower City on the map and the local people took pleasure in letting Bill and Bob know that they were proud of the Flower City heroes.

The next morning there was a large crowd from Flower City at Mineola to see them off. The planes were out in front of the hangars and both Bill and Bob were kept busy answering questions regarding the capabilities and possibilities of the different types lined up for the return race. Some of the pilots could not get started that day on account of the time elapsing between Bob's arrival and that of their own.

Finally the time came for Bob to take off. He was given a rousing cheer as his plane taxied across the field. The assemblage of local people, most of whom had known the two pilots since their boyhood days, added a touch to the start that impressed both Bill and Bob very much. Bill had another hour after Bob's departure. He did not know just what to do or say. He was impatient to get off.

He found himself talking to people without hearing what they said. He had to ask them to repeat their questions. That was not quite the right thing to do, so in order to keep from showing that he was

not displaying the proper interest in what was going on, he went to his plane and pretended to be inspecting it.

Then the starter came and told him that he would start in five minutes. Bill had Breene start the engine. There was no need to try and disguise his impatience now. The roar of the engine precluded any conversation. He climbed into the plane after saying goodbye to his parents and friends. Another short wait and the time of departure was entered in his log book. Bill looked around and waved to the people from Flower City. Then he opened his throttle and the plane started rolling across the flying field. At last he was off on the last half of the race. Could he possibly make up during the 2700 miles, the three hours gain that the other two pilots had on him?

CHAPTER XIX

"BLASTED HOPES"

BILL BRUCE was glad to get away from Mineola on the return trip to San Francisco. The assembly of his friends from Flower City embarrassed and at the same time elated him. He was very much pleased that they had shown so much interest in Bob and himself, but when they started to make young heroes out of the two pilots, Bill became very self-conscious and was glad to get started again.

He circled the field a couple of times and waved to those standing below and then headed for the next stop, Binghamton. Once more he was in the race with many miles between his present location and his ultimate destination. During that long flight many things might happen which would influence his final position. This was proved by the fact that such a large number of excellent pilots had been forced out during the first half. Airplanes at best are mechanical devices and anything mechanical is liable to go wrong.

There was no doubting the fact that the mechani-

cal failures were decreased by the supervision of checking and rigid inspections by the pilot at control stations. On the other hand, Bill was so tired when he landed that he found himself only too ready to rest and be satisfied with the work that was done by the ground crew. He knew that he should stay on the job and give the work some supervision but so far he had trusted most of this to Breene. The results had been satisfactory so far, but what about the future? Would everything work out the same way for the remainder of the race?

Bill thought of this and decided that it was far more important for him to be in condition to fly the plane through any rough weather that he might encounter than it was to stand by while the mechanics were working on the plane. Breene was an exceptional mechanic and knew the engine and plane from one end to the other, so why interfere in that phase of the race? Bill so decided his future actions.

The weather during the trip out of New York was not as good as it had been when Bill came in. There were low clouds which made the flight over the mountains and hills very hazardous. In fact Bill found it necessary to follow the Delaware River from Port Jervis until he had almost reached Binghamton. At times he was flying low over the river with but a few feet to spare between his wheels and

the water. The hills on both sides of the river disappeared above him in the clouds.

In case of engine trouble, the only recourse he would have had would have been to land in the river. If the clouds had dropped any lower, he would also have had to land in the water for there was not room enough to turn around between the hills. Sometimes he flew so close to the trees on the mountain sides that he could see birds and squirrels which flew or scurried away upon the approach of his aerial monster. It was not pleasant flying and he was glad to break through into another area where the clouds were higher and he had some choice as to his route.

Bill was trying to gain on the pilots ahead of him and this low flying was hindering him. Every valley that he had to follow twisted and turned constantly and thus added miles to the distance to be covered. Just how much time he had lost or gained, he had no idea. He hoped that the weather which he encountered was no worse than that the two leading pilots flew through.

Binghamton made its appearance and Bill brought his plane down and landed after touching his wheels. He checked in and found that Bob had lost time also on that leg. Bob was now only fifty minutes ahead. Ten minutes gain in a hundred and forty-mile trip was better than he expected. If he could continue at

that rate he would pass Bob before they reached Chicago. Bill could not hope for that, but there was always a chance.

The half hour's delay at the controls was irksome. Bill knew that it took but fifteen or twenty minutes to service the planes. The remainder of the time was wasted but there was nothing that could be done, for the rules provided for this delay and all pilots must conform.

The next leg to Rochester was an easy one. The distance, 125 miles, should take about two hours and a quarter. The country was interesting to fly over and there was an ever-changing panorama unfolding below the plane. It was getting toward the middle of the afternoon when Bill reached the lake region. The sun was low in the sky and its rays reflected in the water. Bill's course was Northwest and thus numerous lakes acting as mirrors threw the reflected sunlight into Bill's eyes. The lakes were concealed behind hills, ridges and mountain sides, they were lying in the bottom of valleys and would have been rather hard to see under normal conditions. With the sun in the West and the plane traveling on its present course, the reflected sunlight gave the ground the appearance of a crystal-covered cloth shimmering in the sunlight. It was beautiful to see and could not be reproduced anywhere except under exactly the same conditions.

A short time after passing the last of the lakes, Bill saw the Erie Canal stretching out across his path like a long silver ribbon. Here and there it was concealed from view by heavy groves of trees or an intervening hill, but it would come into view again to continue its path toward the spot where it disappeared in the distance.

The clouds had disappeared and the air was clear. Lake Ontario stretched as far as the eye could reach along the horizon. Rochester was almost directly under his plane before Bill realized that he had finished that leg of the flight. A short circle brought him to the landing field and then he had the routine procedure of touching his wheels, making his landing and checking in at the office.

The sun was getting lower and lower but Bill felt sure that he could reach Buffalo that night. No broken, damaged or loosened parts were found during the inspection or servicing of his plane and Bill was off again at the end of his thirty minutes.

His course lay directly into the setting sun. There was nothing of interest to see and he flew without paying much attention to the ground that he passed over. As he approached Buffalo, he saw the numerous railroad tracks leading toward the city. He had not noticed them on his last flight over the same section of the race. It seemed as if there

were railroads coming from every direction converging at the edge of the city.

Bill picked out the landing field while he was still several miles away. As he came nearer he saw that there was one plane there ahead of him. It must be Bob's. Evidently the starter would not clear Bob for the next stop. He had not arrived in sufficient time to make the 180 miles before sundown. Once more they would spend the night at the same place. The next day they would start out on the remainder of the race. That would probably permit one or the other to take the lead permanently. With good luck they should cover eight or nine hundred miles before being held up for the night.

When Bill jumped out of his plane, Bob was waiting for him.

"You have gained thirty minutes on me since leaving New York," said Bob. "My engine is still kicking up. If it does not get away better, I will have to get a new one put in."

"I hope that you can get it fixed up here," said Bill.

"The mechanics seem to think that they have found the trouble in the ignition line," replied Bob. "They are putting in new plugs and if that does not remedy the trouble, they will put in new Delco heads. It ought to be working all right when I take off tomorrow."

"It looks as if we will both spend the night here," said Bill.

"It was too late when I arrived to start for Cleveland," said Bob.

"That being the case, you have no chance of getting cleared."

"I will go and check in and then come back," said Bill.

"You had better go over our plane carefully," said Bill to Sergeant Breene when he returned. "We must try and eliminate any chances of engine trouble."

"Suppose that I tell the mechanics here what is needed and then go and get my supper," said Breene. "I can check up on the work when I get back."

"I will stay here for a while with Lieutenant Finch working on his plane," said Bill. "I may not get away until you get back."

Breene gave instructions to the regular field mechanics what was required on the plane. Bill listened and was satisfied that they knew what to do. The sun was now down below the horizon and twilight was descending.

"I will go over and help with your engine if you think that it will do any good," said Bill to Bob after Sergeant Breene had gone.

"It won't do any harm," replied Bob. "Perhaps between all of us we may be able to find the trouble."

They went out where Bob's plane was parked. There were three mechanics working around the engine. The cowling had all been taken off and the men were changing the spark plugs. For the next hour, one change was made after another. In between the changes the engine would be started to ascertain if the trouble had been remedied. Distributor heads, spark plugs, electric connections and wire insulation were checked, replaced or adjusted, and it was almost dark when they finally had the engine running satisfactorily. The flood lights had been turned on to assist them with their work. Outside of the flood light beam, everything was in darkness.

"It looks as if we were O.K. now Bob," said Bill after the final test of the engine.

"I think so," said Bob as he jumped from the cockpit. "I tried the engine out at different revolutions and could not get a miss."

"Well, let's go and get something to eat," said Bill.

"That suits me all right," said Bob. "It is some distance to the nearest eating joint and I am hungry."

They went into the nearest building to wash up before leaving the airdrome. While putting on their blouses and caps, Bob looked out of the window. He saw a bright glare in the darkness.

"It looks as if there is a fire and it is not very far off!" he exclaimed.

"That is down by the airplanes!" cried Bill, after giving one look out of the window.

Bill was out of the building in a flash. He ran down to the hangar in front of which the airplanes had been parked. The glare illuminated the field with a brilliant light. There were several small buildings to pass before Bill could see exactly where the fire was. In a few seconds he was out in the open where he could see the blaze. It was an airplane. There were several men trying to extinguish the flames. Bill could see all that from where he was.

Suddenly from around one of the buildings, he saw some one running toward him. Bill did not pay any attention to the man. He thought that he was running for fire equipment. The man headed toward Bill, and as he turned to miss him, he stopped, for the man shouted something as he passed.

It took some time for Bill to realize what was shouted to him. He was thinking of the fire and not of the man. Then suddenly it dawned on him what it was the man had shouted. Bill stopped.

"Now try and win the race. I didn't get you here two years ago, but you will never fly that plane again. I'm not through with you yet!"

The man had disappeared into the darkness before

Bill realized what it meant. There was no way of catching him. Bill recognized the voice and the figure of the man when it was too late. If he had only known in time, he could have caught him. The miscreant was none other than Andre.

How and when Andre had arrived in Buffalo, Bill could not imagine. One thing was sure and that was that Andre had come there with the one purpose in mind of destroying Bill's plane. It seemed that the blackguard appeared everywhere most unexpectedly and at the most inopportune moments.

Bill did not know what to do. He could see that his plane was completely destroyed. That put him out of the race. It was useless to charge around in the dark hunting for Andre. He must be several hundred yards away by this time. Bill had no airplane and as far as he could see, all his hopes of completing the race were blasted.

CHAPTER XX

"STILL IN THE RACE"

BILL BRUCE was stunned as he walked over to the pile of debris which had once been his plane. It all had occurred so suddenly. One minute he was highly elated on account of gaining time on Bob Finch and the next he was down in the depths of despair. Who could possibly have predicted any such thing as this happening? The whole plane had disappeared in a few seconds. The fire once started could not be stopped as the tanks were full of gasoline and eighty gallons of gasoline makes a fire too hot to be approached.

Bob Finch saw Bill walking up to the wreck and came over to him.

"You certainly have had hard luck, Bill," he said.

"I guess that I am out of the race," replied Bill. "If I had only seen that scoundrel a few seconds sooner and recognized him."

"What scoundrel?" asked Bob.

"Andre," replied Bill.

"What has he to do with it?" asked Bob. "He is down in Mexico somewhere."

"He was, but he is in Buffalo now."

"How do you know?" asked Bob.

"He presented his compliments when he ran past me in the darkness and shouted, 'Now try and win the race.' I recognized his figure and voice too late to catch him."

Just then Sergeant Breene came up.

"Lieutenant, it looks as if I made a mistake in going to get something to eat," said Breene. "The mechanics were working on the plane and after filling it with gasoline and oil, started to wash it off with gasoline. It seems as if there has been a young fellow hanging around here for the last couple of days. He has been very interested in aviation and had been volunteering his services and doing odd jobs to help. He asked to help on your plane. Somehow it caught on fire while they were washing it down with gasoline. They do not know exactly how, for the young fellow has disappeared. It must have been an accident though."

"Breene, that young fellow was Andre," replied Bill.

"Why, Lieutenant, that couldn't be," remarked Breene, "Andre is miles from here."

"He may be now," said Bill, "but he wasn't a few moments ago. Who was in charge after you left?"

"Sergeant Hawkins, here he comes now," replied Breene.

"I can't imagine how that fire started," said Hawkins as he joined the group. "I am awfully sorry that it happened."

"Just when did that fellow who has been helping you come here?" asked Bill.

"It must have been the day that you left on your way to New York," replied Hawkins. "He has been around here nearly every day since."

"I didn't see him when I landed," replied Bill.

"Come to think of it, he wasn't here then," said Hawkins. "He was here this morning and asked when the leaders of the flight would probably get in. I told him when you were expected. He remarked that he had some business down town and would try and get back in time to see you come in. He did not show up until after you had gone."

"Did you know who he was, where he came from or what he was doing here?" asked Bill.

"He said his name was Andrews and that he lived here in Buffalo," said Hawkins. "He said that he had always been interested in airplanes. He knew the names of most of the pilots entered and said that he knew you personally—worked on planes for you during the war. He seemed to be particularly concerned with your progress in the race."

"He worked on planes that I was flying but not

for me," said Bill. "His work was much in the nature of that which has taken place tonight."

"Did you see him?" asked Hawkins. "He seemed particularly anxious to meet you again. In fact the first thing that he asked when he came this afternoon was, 'Where is Lieutenant Bruce?' I told him that you were over by that other plane."

"What was he doing when the fire broke out?" asked Bill.

"I was cleaning the plane, washing it with gasoline," explained Hawkins. "Andrews came up and asked if I needed any help. I told him to wash down the other side of the fusilage. It seemed as if he was using too much gasoline, so I told him to wipe off some of it and not get the plane soaked, as there would be danger of fire. The next thing that I knew he shouted, 'Look out the plane's on fire.' I looked around as I jumped to get clear and he was disappearing toward those buildings. After that I was so busy with fire extinguishers that I forgot all about him. There was no use fighting the fire, for there was too much gasoline on the plane."

"That fellow has caused you a lot of trouble and worry, Lieutenant," remarked Breene. "It looks now as if you are out of the race."

"Looks that way to me too," replied Bill. "I would like to get my hands on Andre though."

"This fellow's name was Andrews not Andre," said Hawkins.

"He is one and the same," said Bill. "He and I have met off and on ever since 1917 and every time that we meet it means trouble for me. Well, Breene, I guess that we might as well wire for orders to return to San Diego by train."

"I may be able to help you in this," remarked some one from the outside of the group.

Bill looked in the direction of the speaker and saw that it was Captain Wooten, the officer in charge of the flying field.

"This fire was through no cause of yours," continued Wooten. "You were in no way responsible. It is possible that we may be able to get authority to continue you in the race."

"I have no airplane to fly," said Bill.

"There's one here in the hangar," said Wooten. "It was damaged here in landing during the first day of the race. There was too much work needed to fix it up for the pilot to continue in the race within the time limit and he returned home. Since that time the plane has been repaired and is now as good as new. I will send a wire asking permission for you to continue. We will not get an answer in time for you to start on schedule tomorrow, but that will be better than returning by rail."

"Thanks very much, Captain," said Bill.

"Let's go and send the wire," said Wooten.

"Tell me something about this fellow Andre," said Wooten as they walked toward the operations office.

It was a long story, starting with the attempt made by Andre to get Bill dismissed from ground school for cheating. The sabotage on the new airplanes being tested by Bill at the Buffalo airplane factory, was the next incident. This was followed by the attempts made by Andre to secure the plans of the Le Pere airplane which Bill was carrying to France.

"That is not the last meeting which we had," continued Bill. "He organized a gang of outlaws to run dope, Chinese and rum into the United States from Mexico. We broke that up when we drove down their airplane and scattered their gang with machine guns and bombs. His latest appearance, prior to this, was just before I left Calexico. He came across the line and pulled all the cotter pins from the controls of my plane. He left his card on a piece of cloth that he forced into my oil tank. Now, here he is again."

"He seems to have it in for you," said Wooten. "He must have come all the way from Calexico just to keep you from continuing in the race."

"I think that his home is here in Buffalo," said Bill. "Perhaps this is the last that I will see or hear of him."

Captain Wooten sent a telegram to Washington explaining in detail exactly how the accident had happened. He stressed the point that Bill Bruce was in no way responsible or to blame for the fire and requested that he be given permission to continue the flight in an airplane of the same type which was available at the airdrome.

"There's nothing that we can do now but hope for the best and wait for a reply," said Wooten as they left the office. "The probability is that there's no one in the office now who can act on the wire when it is received and there won't be anyone until about nine o'clock tomorrow."

"That will be better than being out of the race altogether," replied Bill.

The next morning Bill was out at the airdrome long before sunrise. He was so sure that his request for the other plane would be granted that he had it serviced and inspected for flight. His log book had been burned in his plane so he made an exact copy of the master chart in the operations office to get the time of arrival from each of the controls during his flight so far. He had this completed when Captain Wooten arrived at the field. Wooten certified that the entries were correct and Bill was ready to start as soon as authority arrived.

Bob Finch took off at exactly six-fifteen and Bill watched him go with a feeling that with Bob went

all chances to win the race. Another plane arrived at seven forty-five from Rochester. That plane would take off in a half hour and Bill would be in third place provided that no one else arrived and took off in the meantime. Bill sat in the operations office and waited. Surely something would come from Washington soon. He looked at his watch from time to time, hoping that the hour for the office in Washington to open had arrived.

Bill had no real hopes of hearing from his request before nine o'clock. By that time several other planes might come in and depart. Each one would put him back farther in the race. Then again the pilots flying toward New York were steadily moving along. Things looked black for Bill.

Each time that the telephone rang Bill sat up with a start. When the message turned out to be about something else, he sank back into his chair. At eight o'clock the plane on the field had fifteen minutes more before it could start. Another plane came in and landed.

"It looks as if I am going to get past you here," said Emit, the pilot of the first plane in. "I hate to do it this way, but I can not afford to wait for there are several other pilots right on my heels."

"I will catch you before you reach Frisco," said Bill half-heartedly.

"I hope that you do," said Emit. "We will have a real race then. I am going out and get started."

"Good luck to you," said Bill as Emit left.

Bill could hear the mechanics warming up Emit's engine. He heard other planes coming in to land. How many came in he did not know, and tried not to care. It was hard, this waiting.

"You can leave when you are ready," said Wooten who entered the office.

"Do you mean that I have permission to take the other plane?" asked Bill.

"I have just received authority," replied Wooten, but he was speaking to empty air for Bill was already out of the office running toward his plane.

"Start the engine!" called Bill as he ran across the field.

Breene evidently knew what he said for he gave the signal and the other mechanics were pulling the propeller through. Bill handed his log book to the starter as he hurried along. The entry was made and in a short time Bill was in his new plane. Breene climbed in and they taxied out to start just as Emit left the "dead line."

Bill opened up his engine while still headed slightly across wind. By doing that he would get into the air ahead of Emit and still be in second place, for Emit was taxi-ing down the field to take off into the wind. It was rather risky to take off across

wind but Bill decided to take the chance. Once more Bill was in second place but Bob Finch had a two-hour start on him. They were in the same relative positions that they had been when they passed through Buffalo traveling East. Emit had gained on both of them. The race to the coast was going to be a close one.

CHAPTER XXI

"CHASING THE SUN TO ST. PAUL"

When Bill left Buffalo, the leading Eastbound pilots had several hours start on him but Bill would be able to make up some of that time due to the hourly changes made in different sections across the United States. Thus, although it was eight-fifteen when he left Buffalo, he would gain an hour when he passed over Toledo, another hour when he reached North Platte and still another when he reached Salt Lake City. Thus he would have three extra hours and the Eastbound pilots would lose three hours.

Bill watched for the slightest indications of any wind. If he found a wind which favored him, he wanted to take full advantage of it. Emit was some distance in the rear. Bill turned and took a last look at the Buffalo airdrome and saw Emit taking off. Bill settled down in his seat and determined to stay on a straight course thereby saving as many miles as he could. As far as he could see there was little if any wind on this leg of the flight. The smoke ascended into the air in a vertical line.

The speed which he made would be only that which the plane was capable of making.

Prior to this, he had been flying at a constant R.P.M. of 1500. He now opened his throttle until the revolutions of his engine were 1525. That would add about five or ten miles an hour to his flying speed. He had an advantage over the others in that his engine had not been through the grueling hour after hour flight across the continent. He thought that it would still stand up under this increased speed.

It was a beautiful day with not a cloud in the sky. Bill could see far across Lake Erie as he flew along its shore. Here and there he could see a lake steamer ploughing its way between ports. They looked like miniatures out there on the water. The different cities passed underneath the plane rapidly. Cleveland loomed up ahead and Bill made his landing.

"I thought that you were out of the race," said the starter when Bill handed in his log book for entry.

"I am still in by special dispensation," replied Bill. "How long ago did Bob Finch leave?"

"Let's see," answered the starter, "he left about an hour and twenty minutes ago. He complained that his engine was not functioning properly."

"I thought that he had that fixed in Buffalo last night," remarked Bill.

"It is still cutting out occasionally," said the

starter. "Here comes another plane, who is that?"

"That is Emit," said Bill, "we left the airdrome together."

"You must have made a fast trip for you came in here ten minutes ahead of him."

"I wasn't wasting any time," replied Bill.

"Just keep up that pace and you will wear out your engine," said Emit as he joined Bill.

"It was only turning over 1525," replied Bill.

"Your engine won't stand that all the way to the coast," replied Emit.

"I am going to see if it won't," replied Bill.

Thus the race continued throughout the day. Bill would gain a few minutes on one leg only to lose them in the next. When he reached Bryan, he was only an hour and a half behind Bob. At Chicago it was an hour and thirty-five minutes. He gained constantly on Emit who seemed satisfied to fly along at the same speed and thus save his engine.

At each control the reports concerning Bob Finch's engine were the same. It was giving some trouble but not enough to stay on the ground and have it fixed. This explained why Bill gained on him. The miles passed by like they were inches. Occasionally Bill would strike a following wind. He accepted this assistance always with the reservation that he would probably strike a head wind on the next leg but he never did during that day's flying.

Bill reached Rock Island and had gained another twenty minutes on Bob. Bob was still traveling along ahead but his lead was steadily being cut down. At Des Moines there was no change in their positions. It was getting toward the middle of the afternoon when Bill reached Omaha. He was a little in doubt as to whether or not he would be cleared for the next stop. Bill did not bring the question up and the starter did not try and hold him.

Bill took off for St. Paul very much pleased with his day's performance. He had gained back most of the time that he had lost on account of his plane being burned and he had been favored with beautiful weather. Everything was breaking in his favor.

It was then that he received a rude awakening. He saw a line of clouds ahead of him even before he reached the Platte River. Just what they indicated, he did not know. He hoped that they were high enough so that he could fly at a reasonable altitude under them. As he approached closer, he saw that they were unpleasantly low. They stretched for considerable distance to both sides of his course.

Bill pushed down the nose of his plane and headed toward the ground. He wanted to get under the clouds. He reached a point about a hundred feet above the ground and still the bottom of the clouds were below him. Then Bill realized what he had ahead. It was a low lying fog. There was a pos-

sibility that he could fly under it but the ground rose gradually toward the West and there was a danger that the fog would settle right down on the ground. To fly over it might or might not be possible. This form of navigating demanded that there be an opening in the fog somewhere near his destination. Otherwise he would never know when he reached it.

It was getting late and the sun was already hidden by the fog ahead. Thus it was almost dark down under the fog. As he dropped down, Bill saw that there was some fifteen or twenty feet between the bottom of the fog and the highest trees. That would do for a while but it was cutting things mighty close if anything went wrong.

The farther under the fog that he went, the darked it became. It was almost as dark as night. Here and there the farmers had already lighted their houses. It was hard to keep on a straight course. There was no railroad which connected with St. Paul which did not twist and turn. The river was worse than the railroad. Bill tried to follow a section line but lost it in a few minutes.

It was more difficult to navigate each mile than the one which preceded it. Then the fog dropped and he was barely missing the higher trees. That made it necessary to keep his head out of the cockpit and to be constantly on the alert for obstacles.

The wind pressure against his face was most uncomfortable. Several times he thought that he should land. He considered such ideas but a short time only, for the other pilots might not land and then he would have lost more time. No, he would get through in spite of the fog.

He passed over the Platte River the second time and knew that he had but a short distance to go to reach his destination. Then out of the semi-darkness he saw something approaching. He could not believe his eyes. It must be another airplane. As it came closer, he was sure of the fact. He had a glimmer of the flames of the exhaust from its engine and then it was gone. They had missed each other only a few feet.

The plane might have been Lieutenant Belvin's who was still the leading pilot headed East or it might be Bob Finch coming back. If it was Belvin, there was a chance for Bill to get through. If on the contrary, it was Bob Finch, then the fog might be so low that there was no chance of getting through.

Fog flying is always dangerous. The fog drops to the ground without the slightest warning. When that occurs, the pilot is in a bad way. He can not see the ground and accordingly does not know how far above it he is. His instruments are not accurate enough to measure such small distances or

to give warning of sudden changes in altitude. Then again he can not see obstacles which stick up from the ground. It is quite similar to walking in the darkness in a strange room with tables and chairs scattered around.

Then again there is the possibility of the pilot losing his sense of balance. He has no means of telling when his plane is on an even keel other than his inherent flying sense. He is flying so low that he can not correct any mistakes that he might make. It he points the nose of his plane downward, he may hit the ground without seeing it. If he climbs his plane too steeply, it may fall off into a spin and crash to the ground before he can get out of the spin.

Bill had some experience in fog flying while going into San Francisco but on that occasion, the fog was only intermittently down to the water's surface. He knew that the boats in the bay were the only obstacles which he might encounter. Here everything was different. There were trees, houses, telegraph and telephone poles and worst of all, the probability of a hill being ahead of him. To make matters worse, the fog so completely shut out the light of the setting sun that it was practically dark.

Bill turned on his cockpit lights and studied his map. There was a railroad off to the South which ran to St. Paul. He decided to find that railroad and

follow it in. He would have the tracks to guide his course and the poles alongside to show him his altitude. The poles would be a constant height above the ground and thus keep him from flying too low. It was bad enough to have to fly as he was now, barely missing the trees but it would be worse if he did not miss them.

Bill headed toward the Southwest and soon crossed a railroad. He hoped that it was the one that he was looking for. It seemed to be laid out in the proper direction so he followed it. He saw the headlight of an approaching engine. There was no chance of getting higher so he tried to edge over so the blast from the smoke stack would not give his plane such a violent bump. He had started the maneuver too late for the engine was under him before he could get away.

The locomotive passed under the plane with a roar and Bill felt the turbulent air hit the wings. It seemed for a few seconds that he might land on the passing cars but they were gone in an instant. He fought to regain control of his airplane and was down between the lines of poles bordering the tracks. The plane was level and he had sufficient room to climb back up to his former position but he had received a jolt which he would never forget.

He passed a station and saw the lights in the signal towers pass by his wing tips. He missed

a grain elevator so close that it took his breath away. Then he saw a few houses near the tracks and he was out in the open country again. Thus he passed over one small town after another. He was getting closer to his destination but he was not as close as he would have liked to be. He wished that he was on the ground with his plane safely staked out for the night.

After passing several small towns, Bill began to fear that he had missed St. Paul. He had formed an impression as to the size of the town but there was always the possibility that he might not see the greater portion of the buildings on account of the increasing darkness and the low lying fog. He was sure that he had been in the air long enough to reach the airdrome.

Once again a group of houses came into view. Bill was sure that this was St. Paul. He turned from the railroad and searched for the landing field. He knew exactly where it should be, but the fog distorted all ideas of direction and distance. Just about the time he thought that he had passed it, he saw a couple of airplanes on the ground lighted up by a gasoline fire. The ground crew knew that he was coming through and had lighted the fire to guide him in.

Bill did not try and circle the field. He cut his

throttle and dove. His landing was far from a good one but he breathed a deep sigh of relief when the wheels of the plane rolled along the ground. He was safely down and had covered 1300 miles since leaving New York. He had 1400 more to go.

CHAPTER XXII

"FORGING AHEAD"

THE airplane stopped rolling and Bill turned and looked at Sergeant Breene.

"In another few minutes we would have been doing real night flying," said Breene.

"In another few minutes we might not have been flying at all," replied Bill.

By this time it was quite dark. Bill was able to make out the planes lined up at the end of the field as they were lighted by the glare from the gasoline fire. Beyond that he could see nothing but an irregular outline which marked the limit of the light thrown from the fire.

He taxied his plane toward the others. Some mechanics came out and guided his wings until he reached the dead line. Bill cut his engine and climbed out.

"We knew that you were on your way," said the starter. "The fog came in so suddenly and so thick that it was dark before we realized it. How far away could you see the fire that we built?"

"Just a short distance from the field," replied Bill.

"It must have been bad flying, wasn't it?"

"Well, I was mighty glad to get down here safely," replied Bill. "I haven't seen much of the ground since leaving Omaha. The fog was right down on the top of the trees and houses in some places. We flew over a train and I could not get clear of the locomotive blast. It threw the plane around something fierce. For a few seconds I thought that we would crash on the tracks. Who was that I passed about seventy-five miles back?"

"That was Belvin. He took off just as the fog was forming. I wouldn't have cleared him had I known that it was going to be so bad."

"He was quite near the edge when I passed him," replied Bill. "Have any of the other Eastbound pilots checked in here?"

"Pearson in a DH and Donnely in an SE5. They arrived too late to get away. Finch is here too. He got in about a half hour ahead of you. Here's your log. You had better put it in your plane."

Bill put the log book in the pocket of the cockpit and climbed out. He was tired and hungry. He had not eaten anything but a sandwich since leaving Buffalo. The trip had been an easy one until he had run into the fog, but the low flying from Omaha had been far more wearying than all of the rest.

"Hello, Bill, how was it when you came through?"

Bill looked around. Bob Finch was walking toward him.

"I had a terrible trip, Bob," replied Bill. "There was fog all the way from the second crossing of the Platte River. How was it when you came through?"

"I did not hit the fog until I was almost here," said Bob. "I guess that I did not have more than twenty miles of fog flying altogether. That was enough for me. The fellows from North Platte ran into it about fifteen miles out. Didn't it get dark quick when that fog came down?"

"It was worse than flying at night," said Bill. "When we do night flying we have lights to guide us and enough altitude to make some kind of a landing if we have to, but this afternoon, I had neither altitude nor vision. It was like driving a car through a dark alley when your lights won't work."

"Come on and we will find a place to spend the night," said Bob.

"I want to be sure that my plane is all right," said Bill. "I am taking no more chances of having it burned up. You go on in, I will come in when I see that it is ready for the start tomorrow. By the way, how is your engine behaving itself now?"

"As erratic as a pack mule," replied Bob. "Sometimes it will go along beautifully and then without any warning whatsoever, it will start missing. I

would like to change it but I don't want to ruin my chances of placing in the race."

"You had better change it now rather than be forced down some place several miles from nowhere," advised Bill. "You know, we have some mighty rough country to fly over between here and the West coast."

"I think that I will keep this one as long as it will run," said Bob. "Did you hear that Emit is down with a bad engine? He had trouble getting in to Omaha. Just made it by the skin of his teeth. He may or may not be able to get away tomorrow."

Bill and Bob stood by the airplane until the mechanics had finished filling the tanks with oil and gasoline. They made as careful an inspection of the plane as they could with the lights available. The cockpits were covered and the plane staked down for the night.

That night the aviators assembled in the hotel for dinner and for a while anyone overhearing the conversation might have imagined himself to be at an aviation field. The talk was about airplanes, navigation, engine trouble and bad weather.

"Belvin has the edge on all of us now," said Donnely, the pilot of the SE5. "He is out of the fog belt and will be sure of an early start. We will have to stand by twiddling our thumbs waiting for it to lift."

"I am not so sure that he will be out of it," remarked Bob Finch. "Bruce hit the fog soon after he left Omaha. It seems to be working its way East. By morning it may reach Omaha."

"It may be gone by morning," said Bill. "One of the natives here told me that it was just as liable to be clear tomorrow as not."

"Did you hear about the way that Emit landed at San Francisco before the race started?" asked Bob Finch. "You all know how short the field is, Emit made one pass at the field and missed it a mile. His mechanic thought that it would assist in getting the tail down to make a shorter landing if he climbed out of the cockpit and slid back on the fusilage. When they came in the second time, the mechanic was all the way back on the fusilage by the stabilizer. Emit did not know it when he landed but when he took off to make a third attempt, he soon knew that something was wrong. He looked around to see what made the plane so tail heavy and saw the man sitting astride the fusilage. There was nothing that he could do but keep going and he did it. He landed the third time and made a good landing. How that man stayed aboard is over my head."

"Say did you fellows hit any bad weather when you came over the Rockies?" asked Pearson. "It was awfully sour when we went through out to the coast."

"Sour was no name for it," replied Bill. "It was so sour that Cardiff found himself without any gasoline down near Duchesne in Utah when he was supposed to be in Rawlins. He only missed it about ten miles. That is, he was 100 miles to the Southwest of Green River when he was supposed to be 110 miles to the East at Rawlins. He landed where he could and it happened that he picked out the side of a mountain. I guess that his plane is still there."

"There have been several more planes eliminated from the race since we started the return trip," said Donnely. "Some had enough on the outgoing flight and didn't even start back. Others have been dropping out here and there due to engine trouble. Others have been lost so far off the course that they could not get back in time to continue. It's a great life, this airplane racing. A fellow has to be on the job all the time. If he ever makes a mistake there are about a half dozen pilots coming along to take advantage of it."

"How many are left in the race?" asked Bill.

"As near as I could get it from the chart in the office, there are only twenty-five now in the race," replied Donnely. "That includes those going both directions."

"It is a hard grind and some of those fellows haven't flown twenty hours in the two months pre-

ceding the race," said Bill. "Now they are trying to get away with about twenty-five hours in three days for only half of the race. I figure that the winner will have flown about fifty or sixty hours in seven days. It is too much for the average pilot to attempt. It is a terrible grind."

"I thought that we had been doing a lot of flying down on the border," said Bob, "we had about thirty or forty hours a month when we were going full blast, but that was nothing compared with what I have done in the last seven days."

"Cheer up," said Bill. "It will be all over in two days more. It may be over for some of us before that. This race would be much easier though if we didn't have to stop at all controls. We would make much better time if we were allowed to fly until we had to land for gasoline. It would be no trick at all to leave New York and reach Des Moines the first night, Salt Lake City the next, and be in San Francisco the third afternoon. That could be done with half hour stops for gasoline when needed and it should not take a half hour to gas up."

"The next time, we will let you draw up the rules for the race," said Pearson. "It ought to be a good one."

"I am going to hit the hay," remarked Donnely.

"I guess that goes for all of us," exclaimed Bob Finch and the session broke up.

All traces of fog were gone the next morning when they reached the flying field. The mechanics had the covers off the cockpits and the planes warmed up. In a few minutes the first planes were off, Bob Finch headed toward the Rockies and Pearson toward the Missouri. Bill and Donnely soon followed each toward his proper destination.

Bob Finch had a thirty minute lead on Bill when they left St. Paul but it did not last long. By the time that they reached North Platte, it had been cut to twenty minutes.

"It begins to look rather dubious as to my finishing with this engine," said Bob when Bill landed. "I am going to try and get through as far as Cheyenne with it. These fellows here say that they can change an engine there overnight. They just told me of one engine being changed there last night. I would like to get as far as Salt Lake, but I am afraid that I can not make it."

"You are taking an awful risk," said Bill. "It may let you down any time."

"It's not as bad as that," replied Bob. "It cuts out now and then, that's all. Did you hear how Steele is creeping up on us?"

"Yes, I did," replied Bill. "He is surely making knots. If he keeps up his present speed he will pass both of us before we reach Salt Lake."

Bob Finch reached Cheyenne ahead of Bill but it

was only a few minutes. Bob was now convinced that his engine must be changed.

"Well, Bill, I will have to stay here and get a new engine," said Bob at Cheyenne. "I came in here on about six cylinders and barely made the field. The mechanics say that there isn't a chance of fixing it up. They are already starting to take out the engine. I hope that you win the race. The best that I can hope for is that everyone else has engine trouble. That will give me a chance to catch up."

"I am sorry, Bob," said Bill. "I still think that you have a chance. Engine trouble is liable to happen to any pilot. I'll see you later."

Bill was off again headed for Rawlins. He was in the lead for the first time since leaving San Francisco. It had been a hard fight from beginning to end. Now that he was in first place among those headed West, he felt that he should be able to keep his position. However, both Emit and Steele were gaining on him. Just how they were doing it, Bill could not imagine. He figured that they must be running their engines at almost full throttle. With the race almost over, there was no further need of being careful of the engines when they were so far behind. The only chance that they had was to get all the speed that they could out of their planes.

The Rawlins field was covered with snow when

Bill arrived. He could not see the "T" because it blended with the white snow. He looked for the wind cone and it also was hard to see on account of the white background. He was sure that there was not enough wind to bother him in landing so he came in, touched his wheels and then circled and landed. The field was hard and the snow was just deep enough to make his tail skid slide along like a sled. He thought that he would never stop rolling. The plane finally ran toward the edge of the race track in which the field was located. Bill kicked on hard rudder and ground looped. Fortunately nothing was damaged but right there Bill came near losing his position as leader of the race.

"Watch out for the Green River field," advised the starter as Bill was about to take off. "It has snow several inches deep on it."

"Thanks for the information," replied Bill, "I'll be careful."

There was snow everywhere between Rawlins and Green River. The mountains were covered with it. The peaks glistened in the setting sun like large jewels. It was a beautiful sight but Bill found that as he flew into the sun, the reflection of the sun on the snow was blinding. The brilliant light hurt his eyes. He was not sure that he could stand the light. Sometimes his eyes seemed to be blind after looking ahead for a while.

He tried shielding his eyes with his hand but it did not keep out the glare. Then he tried flying with his head in the cockpit but that made him nervous as he was flying a compass course, and there were mountains enroute much higher than he was flying.

Finally his eyes began to pain him. If he could only turn around and fly with the sun on his back. That was out of the question. His destination was straight ahead into the sun. Then he checked his course with the railroad and found that he was flying a very erratic course. He was paying too much attention to his eyes and the sun to fly in a straight line. What was he to do? The sun light on the snow hurt his eyes and almost blinded him, but when he kept his head in the cockpit, there was the danger of hitting one of the mountain peaks.

CHAPTER XXIII

"A DISTRESSING DELAY"

Snow blindness has always been one of the worst enemies of the traveler in northern countries. Naturally the ground travelers have been the greatest sufferers. Some people are much more susceptible to this affliction than others. The airmen have always been able to change their course so that they could escape the dazzling sun's reflection. It was necessary to swing the plane around a few degrees and get out of the concentrated rays arising from the sun. That might add a few miles to the trip but the discomfort was eliminated.

With Bill Bruce time was a most important element, and he did not want to change his course. He was racing against pilots who were just as expert if not more so than he was. It was necessary to conserve time and distance. It was decidedly unfortunate that he should have met such a combination of conditions just at this period of the race. The entire section of the mountainous region over which he was flying was a mass of dazzling

snow. This in itself was not so bad but with the sun at just the proper angle to have its rays reflect into Bill's eyes, was a combination which threatened to put him out of the race at least temporarily.

Bill did not want to lose any time by climbing above the mountain peaks and he did not want to crash into a mountain while he was resting his eyes with his head in the cockpit. Suddenly he had an inspiration. Why not get down low and fly at an altitude where the surface of the snow would be broken by the obstacles on the ground?

Bill headed his plane down and leveled off just above the railroad tracks. He found conditions much better there. The passing trains had broken the bright surface with their cinders and ashes. The deadly brilliancy was modified. Bill at once felt the difference. His eyes began to clear up. The pain soon disappeared. He knew that he was losing time by following the tracks but it was worth it.

When Bill arrived at Green River, he found that he was still in the lead but the others had gained on him. Steele and Emit were now coming along almost neck and neck. They were far too close for comfort. Bill was still on the landing field when Emit landed. He was just twenty-five minutes behind. Steele came in just as Bill was taking off, five minutes later.

"Here is something that may help you on the next

leg of the trip," said Breene, as they were about to get into the plane to take off.

"Thanks," replied Bill, but he did not look at the small parcel. He put it in one of the pockets of his flying suit.

The snow on the field had not bothered Bill in landing. It was rather deep but not enough to do any harm. On the take off Bill recollected the trouble which he had experienced in getting off on his way East. He opened the throttle and anxiously waited for the plane to get up speed. It moved forward so slowly that Bill began to get nervous. He didn't want to fall off the edge of the cliff again. The snow held the plane back so much that it was nip and tuck between getting into the air before reaching the end or falling off the cliff.

Bill made no attempt to pull the plane off the ground until they had almost reached the far side of the field. When he thought that he had gained flying speed, he was but a few feet from the cliff. He pulled back on the stick and waited for some time before the plane rose. His wheels were in the air, but as Bill looked down, he saw that he had made it with but precious little margin.

It was not until they had been in the air some fifteen or twenty minutes that he remembered that Breene had given him something. He took the parcel and opened it. Breene had secured a pair of

dark glasses and wrapped them in a cloth. Bill took off his goggles and put the dark glasses on under the visor of his helmet. He found that the glare was gone. It was like flying under normal conditions again.

He wondered for a while why Breene had thought of them and then he remembered remarking how bad the glare had been. Breene had left the plane and was gone for some time but returned a short time before taking off time. Bill turned in his seat and smiled at Breene. Breene looked at the glasses and laughed.

The dark glasses made all the difference in the world. He no longer feared the glare from the sun. The sun was sinking lower and the reflection more intense, but he did not care. He put his plane on a straight course for Salt Lake City and opened up the throttle.

For a while he had intermittent views of the railroad and then it disappeared altogether. He was now flying directly over the mountains toward Salt Lake City. The ground was tilted and twisted with large rocky surfaces standing out in all directions. The level rocky surfaces had been swept clear of snow by the strong winds but the small gullies were level full. This gave the mountains the appearance of being very regular on their surface. Had it not been for the trees thrusting their trunks

and branches through the snow, it would have been impossible to obtain the correct idea of this rough and rugged mountain range. There was practically no wind and the air was almost smooth. Bill set his compass course and then took in the scenery. It was the first time that he had the opportunity to view the gorgeous grandeur of the Rockies. The higher snow capped peaks standing above the general level of the other mountains made the scene one that he would never forget, even though part of its splendor was lost due to the dark glasses.

Salt Lake soon came into sight and Bill knew that this leg of the trip was about over. The city was at the end of the lake down in a valley. The mountains shielded the floor of the valley from the setting sun. Bill had hopes of getting away from Salt Lake and perhaps reaching Battle Mountain before being stopped for the night. He knew that it was lighter much longer flying high up in the air than down on the ground. His clock showed that he still had two hours until the official time for sun set.

There was no delay on the airdrome. The starter authenticated his log book and Bill left on time. Emit and Steele were flying right on his heels. They had both gained ten minutes on him during that hop. Bill was forced to admit that the plane he now was flying was not as fast as the one which he had lost

at Buffalo. The increased speed which the others were getting out of their planes due to running their engines faster could not account for their gaining so much.

The Rockies were now behind him and Bill did not have to fly so high during the next part of the flight. The first part was directly over the end of the lake. Bill did not even attempt to gain altitude. He flew over the water at about one hundred feet. If his compass was in proper adjustment, he would come out all right. If not, he would be off his course when he reached the far side.

For a while, as he approached the lake shore, it looked as if he had missed his mark, but then he saw the railroad, stretching out on a straight line ahead of him across the Great Salt Desert. He had hit it exactly right. The railroad was directly ahead of him. The salt bed looked like another field of snow but it was not nearly as brilliant as the snow which had so nearly caused him to stop at Green River on account of his eyes.

He passed over the small towns which had been built up along the railroad with securing salt as their only reason for existence. Each one brought him nearer to his destination. Then he saw the town of Salduro. Another leg of the journey would soon be completed.

Bill had made up his mind that he would not

repeat his last mistake in landing on the salt bed. He would let his plane roll as long as it wanted. He would not attempt to turn it until it had completely stopped moving. He came down and touched the salt bed with his wheels. Then he noticed that there was a slight coating of snow on its surface.

The snow would make the surface of the salt extremely slippery. Perhaps there would be a much greater tendency to ground loop than formerly. Bill made a circle into the wind and glided in to make his landing. He held his plane in the air as long as he could so that it would not have any more speed than required when the wheels touched. This would remove one chance of ground looping due to too much speed.

The plane soared along above the smooth surface and then suddenly dropped down. It hit hard, so hard that Bill thought for a moment he had smashed his landing gear. The plane barely moved forward after hitting. He thought that he had gotten away clear in spite of the fact that he had misjudged his height above the ground. He found out differently when he tried to turn to taxi toward the "dead line." His plane would not maneuver on the ground.

"Get out and see why I can't turn this plane," called Bill to Breene.

"You have a broken tail skid," said Breene after he had inspected the landing gear and empennage.

"I'll hold one wing and you can get up to the line all right."

Bill taxied up to the line inwardly cussing himself out for making such a poor landing. No matter what he did when landing at this control, it was wrong. He stopped his engine and went to the office for help. He wanted to get the tail skid fixed as soon as possible. He did not think that it could be done in time to get away before sundown, but it was better to have the job completed while it was still light.

"Sure we will do the job for you," said Lieutenant Wylie, in charge of the control. "You must remember that every minute that it takes over a half hour is added to your starting time. Forty-five minutes over a half hour means that you can not get away until forty-five minutes after your regular starting time. As it is now, you will have thirty minutes free work. If any planes come in during that time and you get the job done in a half hour, you still leave ahead of them tomorrow morning. If not, it depends upon how long it takes, who will leave first."

Bill did not wait to hear anything more. He was out of the office running to get help to repair his plane. He soon had Breene and two others working on it. A new tail skid and shock absorber rubber were available from the supplies at the field. The

work of putting it in was all that would count against his time.

Twenty minutes of his half hour passed and they barely had the old tail skid out. Emit came in to touch his wheels at that time. Thirty minutes passed and the job was not completed. Bill was working with the others to get it finished but the tail skid assembly is in such a restricted space that only a limited number of hands can work at the same time. Then another plane came in and landed. It was Steele, just thirty minutes after Bill.

Both Emit and Steele came over to Bill's plane. They had been held up for the night. Although it was not official sunset, neither one could have reached the next stop before that hour.

"You had better hurry up," said Emit. "I will get away ahead of you in the morning yet."

"I hope that you choke," replied Bill. "Here I am down on my back trying to get this tail skid fixed. I have snow in my ears, down the back of my neck and up my sleeves, and you make a crack like that."

"I was just trying to get you to speed up," replied Emit.

The starter came out and watched the proceedings. Finally the job was completed. It had taken exactly fifty minutes. Twenty minutes more than the time allowed.

"It looks as if you and Emit would leave at the same time tomorrow morning," said Wylie. "Steele will leave twelve minutes later. That is of course, if the job is done properly."

He made a careful inspection of the assembly.

"That's O. K," he said, "there's no use of hanging around here any longer as no more planes will be in. The others have been held up at Salt Lake. The last of the Eastbound ones went through this morning. Where did you pass them?

"We passed them at and between every control stop this side of St. Paul," replied Bill. "The last one that I saw was still on the landing field at Salt Lake. I don't think that he is going to get away until tomorrow. He was having a new engine put in."

They were down for the night with but 510 miles to go to reach the end of the race. Bill had lost his lead on account of a poor landing. At first he could not figure out just why he had made it and then it was clear. He had removed the dark glasses before landing at Salt Lake City but here he had forgotten to do so. That little neglect had cost him first place in the race. Could he regain it with a plane that had already allowed his two opponents to creep up on him?

CHAPTER XXIV

"DOWN BUT NOT OUT"

BILL was greatly depressed when he left his plane and walked to the office with the others. He had to admit that it was his own fault that he had lost his lead in the race. His spirits arose, however, when he inspected the consolidated chart showing the stopping points of the other contestants. He was not the only one who was having troubles.

Belvin was held at Buffalo with engine trouble. He might or might not be able to get away on time the next day. Donnely and Pearson were at the same place but one had a leaky gas tank and the other had a leaking radiator. Both would probably get started by morning. They had a distance of about 500 miles to cover, just a little less than Bill had to reach San Francisco. The race could not have been much closer.

The aviators did not stay up and talk long that night. They were all tired and needed rest. The next morning they were awakened much too early to suit any of them, but they had little time to spare,

for when they arrived at the landing field, the engines were already turning over.

Emit and Bill took off together for Battle Mountain. They both flew a compass course. Bill was flying low with just enough altitude to clear the mountains. In between the ranges he dropped down and skimmed the ground. They were bucking a head wind and he wanted to keep low where the wind was not so strong. Emit flew higher and consequently did not have to climb to clear the different ranges which they encountered. Thus it was that they both reached the control station at about the same time. Bill slipped in first and was given credit for leading by two minutes, but in reality, they were still even. Two minutes could hardly be called a lead in a race with 350 miles yet to go.

After the usual wait at the landing field, Bill took off for Reno. He did not even look back to see Emit start. He had such a slight lead that it was of no real value. Steele had not yet arrived at the control when he took off. Evidently Steele had received a setback somewhere. Just where or what difficulty, the operations office at Battle Mountain had not learned.

Bill headed off across the desert toward Carson Sink. He hoped to gain time by taking this short cut. Once again he flew low against a head wind.

This stretch of uninhabited country was much longer than any that he had had to fly over. He left the railroad at Battle Mountain and did not see another town until he reached the railroad again at Carson Sink some hundred and twenty miles away. Everything was going along finely. He reached the railroad and crossed it intending to take another short cut direct to Reno.

He had gone but a few miles from the tracks when his engine started missing. He tried to clear the carburetor of any water by opening and closing his throttle rapidly. That had no effect whatsoever, for the missing seemed to get worse. Bill reluctantly headed toward the railroad in the South. He did not want to land in the desert if it could be avoided. He did not have any too much altitude and his engine was not giving out enough power to gain much.

With barely enough power to support the plane he staggered along until he saw a small town in the distance. As he came close, he saw that he could land almost anywhere, the ground around was as flat as a billiard table. He brought his plane down and landed on the open prairie on the outskirts of the town.

"Breene, if we can find out what the trouble is and get away soon we may still have a chance," said Bill as they both jumped out of the plane.

"Lieutenant Emit was traveling fairly rapidly when last seen," remarked Breene as he took out the tool kit and started for the engine.

"It's only one chance in a thousand that we can catch him," said Bill. "I am not overlooking any bets though. We will try and find out the trouble and then fix it if we can."

"You can rest assured that I will not take any longer than I have to," said Breene after he looked across at the small desert town.

The surrounding country was not very prepossessing—the brown color of the desert standing out in all directions—in the distance large mountains of the same color, not a sign of green foliage anywhere but in the immediate vicinity of the houses along the railroad. Bill could not imagine anyone staying there from choice.

It took time to remove the cowling from the engine. It also took time to start a systematic hunt for the possible cause of the engine trouble, so Bill pictured Emit steadily approaching Reno. He could almost see him as he came to the flying field and touched his wheels prior to making his landing.

"Have you found anything yet?" he asked.

"Why Lieutenant. we have only just landed," replied Breene.

"Pardon me for being impatient," said Bill.

"That's all right," replied Breene, "we ought to

find the trouble soon. Hand me up that spark plug wrench, will you?"

Bill handed up the wrench and said no more. One by one Breene removed the spark plugs but replaced each one in turn. They were apparently not the cause of the trouble. Then he examined the ignition heads and found nothing wrong with them. However, to make sure, he cleaned the heads and checked the distance between the points.

"Lieutenant, it looks as if we are done for unless I find it this time," he said as he climbed toward the rear of the engine.

"Don't say that," exclaimed Bill, "we've got to find it."

"I have," said Breene, "here's a loose lead. Hand me a Crescent wrench."

By this time several people from the small town were crowding around the plane. Bill was busy answering questions. "Yes, he had been forced down." "No, they had not broken anything in landing." "They hoped to get away in a few minutes." "They were headed for Reno." "Yes, they were in the airplane race." "He couldn't say who was leading at the present time." "No, he did not know Lieutenant Strong who served in the Air Service during the war." "No, he could not go in town and see the design of a new type engine which would revolutionize flying. He did not have time."

"Yes, he was sure that the engine would do all that. Perhaps he would be back some time later when he had more time. He would look over the drawings then." "By all means go and get them. Sure he would look them over if he was still here." The questions were endless and Bill answered them as best he could with his mind only half on what was being asked.

Breene jumped down and started gathering up the tools. Bill helped and they soon had them stored away in the kit. They threw the kit in the plane and Bill climbed into his seat.

"Ask one of the men to help you, Breene," he called.

Breene picked out a couple of husky men and told them how to help him pull the "prop" through. The first couple of times they did not get it past the first compression. The propeller turned back to its original position. The third time, it went through with a snap and the engine started. Breene climbed in and they were soon taking off toward Reno.

Bill looked at his clock. That mishap had cost him and hour and fifteen minutes. Emit had probably checked in at Reno and was already well on his way to Sacramento by this time, a handicap which would be hard to overcome.

Bill was not entirely satisfied with his engine, so he followed the railroad into Reno. As far as he

could determine by his instruments and by the sound of the exhaust, the engine was running like a clock, but he had lost confidence in it.

A half hour's flight brought him to the airdrome. He saw that there were no planes on the field long before he was close to it. Either Emit had arrived and then departed or he had not as yet landed. It was very probable that he had already taken off.

"How much start has Emit on me?" Bill asked the starter after he had taxied his plane up to the line.

"Emit? Why he hasn't come in yet," replied the starter.

"Surely he must have," replied Bill. "He left Battle Mountain two minutes after I did and I have been down on the desert with engine trouble for over an hour."

"I know that, but he hasn't put in an appearance here."

"I am still in first place then," said Bill.

"No, you're not."

"Well, who is then?" asked Bill.

"Steele left here just before you came in."

The race was becoming complicated. Both leaders had been forced down and neither had known the other was not still in the air. Then while both were having their troubles on the ground, the man in third place took the lead. To make

matters worse, he had a half hour's start on Bill and there were but 190 miles in which to catch up with him.

"Breene, our chances are getting slimmer every minute," said Bill. "Lieutenant Steele has a half hour's start on us and we have only one more control before we start on the last leg."

"We might catch him yet," replied Breene. "Stranger things than that have happened. Look what happened to us when we were flying along in the lead. We might even catch up to him in Sacramento."

"Possible but not probable," replied Bill, as he walked away.

He thought over the next leg of the trip. It led directly over the Sierras. If there was a strong wind blowing against them, it would take a good two hours to make the trip. His plane was not as fast as Steele's. That would make a big difference. The wind had been against them all day but not enough to make much difference. The region over the Sierras was different, for when the wind blew from the West it sometimes blew with hurricane force. Bill knew that the wind was almost always from the West at the summit.

Bill took off with many misgivings of catching Steele. He flew low over the town and climbed slowly to cross the mountains. Then he saw an

engine standing on a switch. The smoke was standing out straight from the stack. The wind was from the West and it was blowing a gale. Bill knew it as soon as he reached the first of the mountains, for his plane was buffeted around like a cork.

If he climbed high enough to get out of the bumps, he would have a wind of almost hurricane force to buck. If he stayed down low, he would miss the strongest wind but would have a most uncomfortable trip on account of the gusts and their accompanying bumps. Bumps or no bumps, Bill decided to fly as low as the mountains would allow. He forgot all about his engine. The one thing now was to gain as much time as he could on Steele.

The farther along he flew, the worse the bumps and jolts became. At times it seemed as if the plane could not be righted. Then again it would drop so suddenly that he would be thrown clear of his seat. He looked around at Breene and saw him gripping the sides of the cockpit with both hands but he smiled encouragingly at Bill.

It was a case of fight, fight, fight to keep the plane under control and Bill worked hard. It was strenuous work to be constantly moving the control lever back and forth to counteract the effect of the wind. There was always the thought in the back of his mind that, no matter how hard work it was

perhaps Steele had found the going too rough and had climbed up to higher altitudes where the wind was not so gusty but much stronger. If that was the case Bill would make up considerable time during the flight. If not, then their positions would be about the same when they reached Sacramento. Whatever risk it meant, Bill was determined to make use of the only method he knew of to gain on the leader. Would he make a go of it or would Steele be the lucky one?

CHAPTER XXV

"NECK AND NECK ACROSS SAN FRANCISCO BAY"

Bill Bruce was not sure that he was doing the right thing as he flew across the Sierras with his plane far below the highest peaks. Sometimes he had to follow the windings of a narrow valley to keep from hitting the mountain sides. The plane was thrown and tossed about far too much for comfort as it barely missed the high trees which covered the sides of the ridges.

Bill knew that the worst was over when he reached Truckee. He had then crossed the crest of the mountain range. From then on his course was down grade. The ridges were high but they sloped off and finally leveled out into the Sacramento Valley. Sometimes he would follow one valley only to discover that it made a turn to the North or South and then he would jump over a ridge and try the next one.

As he dropped with the general level of the ground, the air became smoother but there were still sufficient bumps to keep him working at his

controls. He became accustomed to the rough flying and did not receive such a nervous shock when he was thrown from his seat and kept from leaving the plane only by the safety belt. He made no attempt to throttle his engine as he dropped the nose of the plane to lose altitude with the mountains. Consequently his air speed jumped to over 120 miles an hour.

Suddenly the expansive valley came into view from beyond an intervening ridge. At the same time he saw a speck in the sky far above him. At first he thought that it must be a bird but the more he looked at it the more convinced he became that it was Steele's plane. Steele was flying high then to get out of the rough air.

The sight of Steele so near at hand made Bill more determined than ever to get everything that he could out of his plane. He opened his throttle until the indicator showed a speed of 1650 revolutions per minute for the engine. Perhaps his engine would not stand the excess strain being imposed, but the race was about over. Another half hour would put him in Sacramento and then he had about fifty minutes more to reach San Francisco. Certainly the engine should continue to function at that speed for such a short time.

With the increased speed of the engine, the plane jumped forward. They were still losing altitude

and had added speed by opening up the engine. They were now making about 140 miles an hour air speed. Every minute brought them closer to Steele. One thing was certain Steele had not as yet seen the plane which was gradually creeping up on him. He was high in the air and Bill Bruce was flying along just clearing the tree tops. It was hard to see a plane flying along just above the ground from a position high in the air. Bill hoped that he would not be seen.

By the time that they reached Auburn, Bill was flying directly beneath Steele. Everything was now in Bill's favor to reach Sacramento first. If his engine would only hold out for a few minutes longer, he would make it.

The long row of buildings on the aviation field came into view and Bill concentrated his attention on landing there with the least practicable delay. He pointed the nose of his plane at the landing field with his engine wide open. Missing the roofs of the buildings by inches, he throttled down and let his wheels touch the ground. Another circle and he landed. Steele came in to touch his wheels just as Bill landed his plane.

Bill taxied up to the line and reported in. Steele came up a few minutes later. Steele could not believe his eyes when he saw Bill.

"Well, I'll be darned!" exclaimed Steele. "I

thought that you were down in the Nevada desert with a bum engine."

"I was," replied Bill. "I managed to get that fixed though. Where have you been?"

"I didn't think that there was a chance in the world of you catching up with me when I left Reno and you had not even landed. I had a good half hour's start on you, at least that much and probably more. I thought that I could take it easy and still get here with a good lead. What did you do, fly in here wide open?"

"Just part of the way," replied Bill. "What altitude were you flying over the mountains?"

"Between ten and eleven thousand feet most of the time," said Steele. "What altitude were you flying?"

"Only enough to clear the trees," replied Bill. "That explains most of my apparent speed. You were fighting a strong head wind. I did not have such a strong one."

"It was smooth flying up where I was though," said Steele.

"Yes, and about twenty or twenty-five miles an hour slower," interjected Bill. "You take the smooth air and the strong wind if you want to, but I will take the rough air and the low wind velocity."

"Look out for me on the next leg," said Steele.

"You have a two minutes' start but you will have to do some flying to keep it."

"I am just the boy that can do that flying," replied Bill.

"I wonder where the Eastbound pilots are," said Steele.

"They are sprinkled between Rochester, Binghamton and New York," replied Krull the operations officer. "We just received a telegram which stated that Belvin was in the lead and had landed at New York at five o'clock Eastern Time. We have it figured out here, that taking the difference into consideration, either one of you can beat his time if you get to San Francisco by four-thirty our time. That should give you a half hour leeway. You will take off at three-ten and should be able to make it by four o'clock at the latest."

"Well, here goes," said Bill. "I take off in five minutes."

"I'll be right on your tail," Steele called out, as Bill walked away.

"Breene, we made it by the skin of our teeth," said Bill, as he came to his plane. "Do you think that this old boat will stand another forty or fifty minutes wide open?"

"I don't see that you have any choice," replied Breene. "Lieutenant Steele is not going to throttle

down his engine after he takes off with you just ahead of him."

"Well, let's go," said Bill.

Krull came up and signed the log book as Bill was sitting in his plane waiting for the starting signal. Steele was in his plane nearby with a look of grim determination on his face. Both had seventy-five miles to go and the race would be over.

The starter gave the signal by dropping his upraised hand and Bill was off. He took off in the general direction of San Francisco and left his throttle open. The valley was absolutely level and there was no need to climb his plane more than enough to clear the trees. Bill hugged the ground in an endeavor to get the maximum speed out of his engine.

He crossed the Sacramento River and soon came to Suisun Bay. From there on the flight was over water. Ordinarily Bill would have continued his trip at the low altitude but this time he climbed his plane slowly so that he could fly straight toward his objective. He reached the Berkeley Hills with an altitude of fifteen hundred feet. San Francisco Bay lay under him and ahead of the plane. The Golden Gate reflecting the rays of the sinking sun transmitted a golden hue which was sufficient to explain why it had received its name.

Far out in the ocean, Bill saw the Farallone Islands standing like sentinels to guard the gate Alameda. Oakland and Berkeley lay snuggled in close to the hills with their lower sections adjacent to the waters of the bay. Angel, Alcatraz and Goat Islands formed a line as if to mark the half way point across the bay. San Francisco covered the end of the peninsula forming the Southern part of the Golden Gate.

Bill was admiring the view when he received a shower of gasoline. It came in a sheet from the front of his cockpit. There was no doubt as to its being gasoline for it burned and stung where it hit his face. Then as if to impress upon him that his plane was exhausted and needed a rest, the engine started coughing and sputtering. The break in the gas line was evidently a complete one, not a drop of gasoline was getting to the engine. In a short time, a very short time, it would stop.

Bill looked down and was satisfied that there was nothing that he could do. He had just passed Alcatraz Island and was still over the water. There was a probability that the plane would catch on fire on account of the gasoline being thrown around the hot engine, but beyond thinking of it, there was nothing that Bill could do.

In the meantime, the engine stopped completely. The propeller was still turning but there were no

explosions in the cylinders. All gasoline in the lines had been consumed. He headed his plane down and hoped that he had enough altitude to glide to the aviation field. He was now close enough to see the airdrome with its white "T". He could see the people walking around, the mechanics working on airplanes and the automobiles drawn up alongside the field. He wondered if he could make it.

Bill then looked around to see where Steele was. He did not have to look long, for Steele was right behind him. Bill was slightly higher and might be able to gain sufficient speed in his glide to keep ahead, but if he nosed down too much, he could not reach the aviation field. Bill pushed the nose of his plane farther down and heard the wires of his plane hum as it picked up speed.

The field was getting closer and closer but Steele was also getting nearer. For Bill, this was by far the most exciting part of the whole race. He was within gliding distance of the finish with a dead engine. To make matters worse, there was the danger of the plane catching fire. Then Steele was coming with his engine wide open and might be able to pass him before he reached the field. It was most exciting, too exciting for Bill, for not only the race, but also his life and that of his

mechanic depended upon his ability to get his plane down safely.

Bill was now losing altitude rapidly. He was sure that he would be able to reach the field, but he would not have much room to spare. Out of the corner of his eye, he saw Steele drawing up closer. The nose of Steele's plane was now alongside of the tail of Bill's. The field, however, was but a couple of hundred feet away. Bill was now too busy with the necessary maneuvers attendant to the landing of a plane with a dead engine, to pay any attention to Steele. The race would now have to take care of itself.

Bill leveled off and his wheels touched the ground. The plane bounced into the air and at the same time, he was aware of the fact that Steele had flashed by. Just which plane touched its wheels first, Bill did not know. He allowed his plane to settle back on its wheels and tail skid. The plane bounced a couple more times and then came to a stop.

Bill was climbing out of the plane when a group of officers and men came rushing out.

"What a whale of a race," exclaimed Capt. Andy Smith, as he came up. "You won by a hair and with a dead engine. Oh boy! what a race."

Bill was too pleased to say a word. He was too

tired to exert himself or even think, but he was content that he had won the 5400 mile race from one coast to the other and return.

THE END

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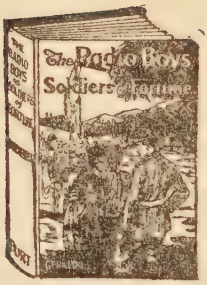

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